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A

GENERAL COLLECTION

OF THE

BEST AND MOST INTERESTING

VOYAGES AND TRAVELS

IN ALL PARTS OF THE WORLD;

MANY OF WHICH ARE NOW FIRST TRANSLATED INTO ENGLISH.

DIGESTED ON A PLAN

BY JOHN PINKERTON

AUTHOR OF MODERN GEOGRAPHY, &c. &c.

VOL. V.

ILLUSTRATED WITH PLATES.

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A

GENERAL COLLECTION

OF

VOYAGES AND TRAVELS.

TRAVELS IN THE TWO SICILIES,

AND

SOME PARTS OF THE APENNINES.

TRANSLATED FROM THE ORIGINAL ITALIAN OF THE

ABBÉ LAZZARO SPALLANZANI,

Profeſſor-Royal of Natural Hiſtory in the Univerſity of Pavia, and Superintendant of the Imperial Muſeum in that City; Fellow of the Royal Society of London; and Member of the Academies of Pruſſia, Stockholm, Gottingen, Turin, Padua, &c. &c.*

ADVERTISEMENT BY THE TRANSLATOR.

THE name and eſtabliſhed reputation of the Abbé Spallanzani muſt certainly be a ſufficient recommendation of any work he gives to the public, eſpecially of one like the preſent, on which he appears to have beſtowed a more than ordinary degree of labour and attention. The variety of objects, highly intereſting to the naturaliſt and the philoſopher, on which it treats, may be ſeen in the following introduction, which contains, in part, a ſummary of the work.

In the tranſlation, fidelity and accuracy have been principally ſtudied. The reader, it it preſumed, has before him a faithful tranſcript of the original (if the expreſſion may be allowed) in his own language. Where the meaning admitted of no doubt, the tranſlator thought himſelf at liberty to depart from the phraſeology of his author, to give his idea with greater perſpicuity: a licence which the different idioms of language will frequently render neceſſary: but where any ſhadow of ambiguity appeared (and in every work, eſpecially works of ſcience, ſuch ambiguities of expreſſion will occaſionally be found) he has ſcrupulouſly adhered to the literal expreſſion of his text, that the reader may be enabled to form his judgment in the ſame manner as from the original.

* The parts leaſt intereſting to the general reader are omitted.

As the Abbé has continually employed the terms [illegible] ture of chemiſtry, it has been thought proper, for the benefit of readers not familiar with this ſcience, to add, in a parentheſis, the more uſual names of chemical ſubſtances; as for inſtance, to ſubjoin to *muriate of alumine* the common term of *alum*; and to *muriate of ſoda* that of *ſea-ſalt*. The Abbé has likewiſe uſed the term *tulomi*, on all occaſions, inſtead of heat or warmth. In this the tranſlator has not judged it adviſable to follow him, except when he has employed it in the proper chemical ſenſe of the *matter of heat*.

The plates are faithful copies of thoſe in the original, but more carefully and elegantly finiſhed. Some may, perhaps, object to the diſproportionate ſize of the human figures repreſented in plates II. III. and V. This objection the author has foreſeen, and, at the end of Vol. IV. apologizes, by remarking, that "the painter conceived he might be permitted this licence, as, had he attempted to obſerve the rules of proportion, theſe figures would have been ſcarcely diſcernible*."

The work in the original is dedicated to Count Wilzeck, Imperial Plenipotentiary of the General Adminiſtration of Auſtrian Lombardy; but as this dedication only contains the eulogiums of which ſuch compoſitions uſually conſiſt, it has been omitted.

INTRODUCTION.

THE zeal with which I have always been animated to contribute, as much as might be in my power, to the improvement of the Public Imperial Muſeum of Natural Hiſtory in the Univerſity of Pavia, by enriching it with the new and important productions I procured in the various journeys and voyages I undertook both in Italy and other countries, incited me to travel, during the ſummer and autumn vacations, into the Two Sicilies. Though this Muſeum abounded in other kinds of natural productions, it was extremely deficient in volcanic matters, which merely conſiſted of a few trivial ſcoriæ of Veſuvius, and ſome extremely common lavas of the ſame mountain, that, having been cut into tablets and poliſhed, had loſt their diſtinguiſhing characteriſtics, and conſequently could little contribute to the inſtruction of youth and the advancement of knowledge.

As I knew that no countries in Europe could furniſh a more ample and valuable collection of volcanic products than the Phlegrean Fields, Mount Etna, and Eolian, or Lipari Iſles; I reſolved to viſit them, and employed ſeveral months in laborious but uſeful reſearches. To make a proper choice, however, of the ſubſtances ſuitable to the deſign I had in view, it was neceſſary to examine on the ſpot the various qualities of the bodies compoſing thoſe volcanized regions. This I performed with the ſame diligence and care I have uſually exerted in the examination of other natural objects. Still more to enable myſelf to make this ſelection, and correct my judgment with reſpect to theſe ſubjects, I had read, and then re-peruſed, whatever had been written by travellers and the moſt eminent naturaliſts relative to volcanos, and was ſincerely grateful to them for the inſtruction I derived from their works. In the courſe of this inquiry, however, I diſcovered what I had often experienced before, with reſpect to other ſubjects, in which I had been preceded by other naturaliſts, that, notwithſtanding the elegant and intereſting accounts they had given us of the countries which have ſuffered the action of fire, it was

* Theſe plates are omitted as a diſgrace to the ſtate of the arts in the eighteenth century. The view of the crater of Etna is that of a well!

ſtill

ſtill poſſible to add to them by my reſearches, and throw new light on volcanic knowledge. This I ſay not to arrogate to myſelf any merit, and ſtill leſs to detract from that of others. The powers of the human mind are ſo limited, that it never can entirely exhauſt the ſubject it inveſtigates. Other naturaliſts who ſhall hereafter diligently explore the countries through which I travelled, it is not to be doubted, may improve this part of natural hiſtory with ſtill new diſcoveries. In like manner, though others have written of the Phlegrean Fields, Etna, and the Eolian Iſles, the obſervations I have made appear to me to merit publication.

The method in which I proſecuted my reſearches in theſe Travels was the following: I have endeavoured to ſtudy volcanic countries as mountains ſhould be ſtudied. The lithologiſt who would acquire an accurate knowledge of the latter, attentively conſiders their ſtructure of rock, the whole of their huge maſſes, the poſition and direction of the various parts or ſtrata which compoſe them, and the intertexture and relations of thoſe ſtrata. I have adopted the ſame mode of inquiry in the courſe of theſe travels. Fire in conjunction with elaſtic gaſes has formed whole mountains and iſlands; but all of them have not been produced in the ſame manner, nor are they compoſed of the ſame ſubſtance. Here we find large maſſes of tufa; there of ſcoriæ and lavas; in another part, pumices, enamels, and glaſſes; and in another, a mixture of all theſe ſubſtances. It was therefore neceſſary to examine them on the ſpot, and obſerve, both when they were ſeparate and intermingled, their relations, directions, mixtures, &c. without once loſing ſight of the peculiar compoſition of theſe volcanic mountains, every part and receſs of which it was requiſite I ſhould explore.

In theſe inquiries I particularly directed my notice to two objects: the central ſummit of the iſlands and mountains, and their ſhores. The former is uſually the firſt viſible effect of the ſubterranean conflagrations, the part which firſt emerges from the lavas, which often preſerves the crater entire, and ſometimes burning, but more frequently only its recognizable traces. The ſhores of volcanic iſlands and mountains waſhed by the ſea, were alſo peculiarly entitled to attention, nor do I know that any volcaniſt who has hitherto travelled has made them one of the objects of his inquiry. We know how much it conduces to an accurate knowledge of the ſtructure of mountains, to croſs, or go round them in the beds of torrents which have corroded their foundations, and laid bare a part of their ſides; thus revealing, if I may uſe the expreſſion, their internal organization, which without this aid would have been ſought in vain from external appearances. The ſea, by inceſſantly beating with its furious waves the ſkirts of the iſlands, has cauſed fractures and ravages incomparably greater than thoſe occaſioned by rivers. By coaſting, therefore, theſe ſhores in a boat, landing where they appear to invite particular attention, and examining their open ſides, and rocks half fallen down and falling, we may obſerve a variety of important facts conducive to the improvement of that kind of ſcience. I ſhall not here enlarge on the advantages to be derived from coaſting volcanic iſlands; in the courſe of this work they will be proved by facts.

The reſearches I made in volcanic countries, though neceſſary, and highly inſtructive, were not, however, ſufficient to complete my deſign. As lithologiſts are not ſatisfied with knowing the ſtructure, ſtratification, and other general qualities of mountains, but endeavour likewiſe to diſcover the nature of their component parts, I reſolved not to depart from the ſame method of enquiry. It is true that ſome volcanic productions are ſo altered by the fire, that it is difficult to aſcertain the nature of the earths from which they have been produced, unleſs we call in aid the proceſſes of chemiſtry. Such are enamels, glaſſes, and frequently pumices. But lavas, which, in the greater

part of the places where I made my obſervations, are abundant beyond all belief, are ſeldom ſo changed by the fire as not to retain the evident characters of their primitive rocks.

I began, then, by conſidering the external appearance and qualities of the places I examined, as far, at leaſt, as circumſtances would permit.

Whoever has undertaken to travel among mountains, in order to make reſearches relative to the foſſil kingdom, is not ignorant to what changes the ſurfaces of ſtoney ſubſtances, even the moſt ſolid and hard, are ſubject, from the action of the elements during a long ſeries of years and ages. Hence, if he would form an accurate judgment of the ſtones he examines, he will not fix his attention on thoſe found on the ſurface of the earth, but rather on thoſe buried at ſome depth, and will frequently forcibly break and detach them from the internal maſſes of which they are a continuation. Still greater changes take place in ſome parts of the mountains which throw out fire, from the action of ſulphureous acid vapours, beſides that of the atmoſphere and of time; and very frequently the volcanic product, which on the ſurface ſeems to be of one kind, and at ſome depth, of another, is in fact the ſame, but more or leſs changed in the firſt inſtance by the action of the atmoſphere, or that of ſulphureous vapours.

To render my reſearches more accurate and certain, it was neceſſary that I ſhould not content myſelf with a ſingle inſpection of the volcanic ſubſtances, on the ſpot where I gathered them. I therefore, when I returned to Pavia, re-examined them with the greateſt care, in the retirement of my ſtudy; not only with the naked eye, but with the aid of the lens, before I began to characterize and deſcribe them lithologically. The reader will find ſome of the deſcriptions rather diffuſe; and, perhaps, I may be charged with having been too minute. But it appeared to me that I could not be more concise as a detailed deſcription of ſuch products can alone enable us to diſcover to what kind of rocks they appertain, and what is the particular characteriſtic of the volcanic countries in which they are found. Thoſe who, when treating of volcanos, have been ſparing of ſuch deſcriptions, have left us imperfect works, though in other reſpects they may be very valuable. All who are verſed in theſe ſubjects, are acquainted with the account of the famous eruption of Etna in 1669, and the memoirs relative to different remarkable conflagrations of Veſuvius by Serao, Della Torre, Sir William Hamilton and Bottis. With reſpect to what regards the currents of lava which those two volcanos at thoſe times poured forth, the ſymptoms and phenomena that accompanied them, and the other circumſtances deſerving notice which preceded and followed them, their hiſtories certainly merit great commendation. They will be highly valuable in the eſtimation of every lover of volcanic ſcience; and I have frequently, in the courſe of this work, derived ſuch aſſiſtance from them as demands my grateful acknowledgment. But from theſe relations, what idea can we in general form of the nature of the products ejected, and the currents they have formed? When do they deſcribe with ſufficient accuracy a ſingle ſubſtance? After having read theſe relations of the violent eruptions which have burſt from the ſides of Veſuvius and Etna, we remain profoundly ignorant to what primitive rocks they appertain. I mean not by theſe remarks to injure the reputation theſe writers have juſtly acquired. Their deficiency in lithological ſtudies, not cultivated at that time as in the preſent, is a ſufficient excuſe; I intend only to ſhew the neceſſity there is for circumſtantial deſcription, which, in fact, form the baſis of all ſolid ſcience.

It is neceſſary that I ſhould here mention, with reſpect to the deſcriptions I have given of the different products of the various volcanic places I viſited, that, though I have treated diffusely, and in detail, of thoſe of the Phlegrean Fields, ſituated to the weſt

weſt of Naples, and of others of the Eolian or Lipari Iſles; I have only ſpoken incidentally of the productions of Veſuvius and Etna, though both theſe volcanos have furniſhed me with a great number of ſpecimens for the Muſeum at Pavia: not only becauſe that to have examined theſe two mountains minutely, would have required years inſtead of a few months; but becauſe a deſcription of theſe has already been executed with great ability by the Chevalier Gioeni, in his *Lithologia Veſuviana*, and by M. Dolomieu, in his "Deſcriptive Catalogue of the Products of Etna."

The opportunity afforded me by having theſe volcanic ſubſtances continually under my inſpection at Pavia, induced me to make new experiments on them. It is certain, that the greater part of them contain iron. Yet the proof of this by experiment was not ſuperfluous, as the greater or leſs quantity of the martial principle might thus be diſcovered. I therefore uſed, according to circumſtances, the magnetic needle, or magnetized knife. I applied the former to the products reduced to powder, and the latter to thoſe in fragments; taking care that they ſhould always be, as far as I was able to effect it, of the ſame configuration and volume. I then obſerved the different diſtances at which they attracted the magnetic needle, without noticing the pieces which exerted no ſuch power, though I do not mean by that to deny that they contained iron *.

I was attentive at the ſame time to an enquiry of much greater importance. Veſuvius, Etna, the Eolian Iſles, and Iſchia, are large mountains formed of rocks which have undergone liquefaction, and ſometimes a true vitrification; ſuch has been the violence of the ſubterranean conflagrations. What fire can we produce equivalent to theſe effects? I have diſcovered that the fire of the glaſs-furnace will completely fuſe again the vitrifications, enamels, pumices, ſcoriæ, and lavas of theſe and other volcanic countries. The ſame will, in like manner, vitrify rocks congenerous to thoſe from which theſe mountains have originated by the means of ſubterranean conflagrations. A leſs intenſe fire, on the contrary, produces no ſuch effect on any of theſe ſubſtances.

As I wiſhed to attain to the moſt ri[illegible]curacy in this experiment, I was not ſatisfied with diſcovering that the fire of [illegible]rnace was capable of effecting theſe fuſions; I determined, if poſſible, to [illegible]e preciſe degree of heat neceſſary to produce them, for which purpoſe nothi[illegible] better adapted than the pyrometer of Wedgwood. This inſtrument, it is well [illegible] compoſed of two parts; the thermometric pieces and the gage. The form[illegible]nall cylinders of very fine clay. The latter, which is ſix inches long, is form[illegible]wo pieces of the ſame earth, the internal ſides of which are ſtraight and ſmooth; [illegible] diſpoſed as to be more diſtant from each other at one extremity than the other, [illegible] forming a converging ſpace divided into two hundred and forty parts. The gre[illegible] aperture of this gage is the beginning of the ſcale, and denotes the heat which produ[illegible] a beginning of redneſs in iron. If, therefore, one of the clay cylinders ſhall hav[illegible]been expoſed to a greater heat, it will be contracted, and ſink lower between the co[illegible]erging ſides; and, the ſides being graduated, the degree at which it ſtops will be the [illegible]eaſure of its contraction, and conſequently of the degree of heat it has undergone; the cylinders, as the inventor has obſerved, repreſenting the mercury, and the converging ſides the ſcale of the thermometer.

To aſcertain, therefore, the degree of heat in the glaſs furnace neceſſary for the fuſion of theſe volcanic productions, and the rocks whence they derive their origin, I made uſe of this pyrometer in the following manner. I placed in the furnace, near the ſubſtances I intended to fuſe, one or more of the clay cylinders abovementioned, in a caſe of

* As the iron is ſometimes in the [illegible] (calx), I employed the uſual methods to revive it in the productions I examined.

the

the ſame clay, and let them remain there the whole time neceſſary for the fuſion of the ſubſtances. I then meaſured their contraction by the gage; and found that the heat of the glaſs furnace was 87⅛ degrees of this pyrometer; a heat, according to the obſervation of the inventor, but 2½ degrees leſs than that of welding iron, which latter correſponds to 12,777° of Fahrenheit's thermometer *. In fact, filings of [illegible] the ſurface of the metal is greatly enlarged) being continued four-and-twenty hours in the glaſs furnace of Pavia, of which I always made uſe in theſe experiments, [illegible] nated into a ſolid though friable body, and ſhewed an evident beginning fuſion. Whence I conclude that a greater heat is uſually kept up in theſe furnaces than is neceſſary for the fuſion of glaſs.

Though the blowing pipe did not in general greatly conduce to the ſucceſs of my experiments, I ſometimes found it uſeful. In ſome caſes I likewiſe had recourſe to the aſſiſtance of fire excited by oxygenous gas (dephlogiſticated air).

There is ſcarcely any natural product, volcanic or not volcanic, of which I have treated in this work, that I did not try in the fire, in one or other of the manners I have deſcribed, and frequently more than once. Theſe experiments in the dry way I often accompanied with others in the humid, with reſpect to the productions of volcanic fire. The manner in which I proceeded was as follows:

When the external appearance of theſe products perfectly agreed with that of earths not volcanic before known, and analized by able chemiſts; I thought I might determine the genus of the volcanic production without analyzing it in the humid way; and when I made experiments on a few pieces, I found I was not deceived. But when the external appearance appeared to me new, and not to agree with that of the earths already known, I then had recourſe to an examination by the humid method, by which I elucidated the genus, and frequently the ſpecies, of theſe ſubſtances. Before, therefore, I proceeded to deſcribe any pieces I had collected, I was certain, or thought myſelf ſo, that I had obtained a ſufficient knowledge of them. And when I could not arrive at this knowledge, but remained uncertain to what genus they appertained, I have never failed to expreſs myſelf doubtfully. [illegible] earches, equally laborious, delicate, and neceſſary, I have employed much of [illegible] not without conſiderable expence. In my volcanic travels I have been obliged upon myſelf the parts both of naturaliſt and chemiſt. The natural hiſtory of [illegible] ſo cloſely connected with modern chemiſtry, and the rapid and prodigious progreſs [illegible] the one ſo exactly keeps pace with that of the other, that we cannot ſeparate them without great injury to both. But as the chemiſt in his laboratory can reaſon but imperfectly concerning the mountains, the component earth of which he analyzes; ſo the obſervations of the lithological traveller muſt always be defective when not conjoined, at leaſt when it may be neceſſary, with chemical inveſtigations. What is true of ſolids not volcanic, muſt likewiſe be ſo, in a certain degree, and with neceſſary allowances, of volcanic foſſils. Here, in fine, neither obſervation alone, nor experience alone, are ſufficient; but both muſt join to conduct the inveſtigator of nature, or he cannot be ſucceſsful in his reſearches.

Where my experimental enquiries have been ſhort, I have incorporated them with my narrative; as they are relative to the productions I met with in the different places I viſited. But more than once I have found it convenient to act otherwiſe; and the ſubjects treated, appear to me to juſtify the method I have adopted.

What is the activity, in general, of volcanic fires, has been a queſtion long agitated, and which is certainly of difficult ſolution. In this diſpute, writers have gone into [illegible] oppoſite extremes; ſome aſſerting that theſe fires are extremely active, and others that they

* Journal de Ro[illegible]

are very feeble, while all endeavour to support their opinions by facts. Having treated on volcanos so much at length in this work, I could not avoid considering this question. I have weighed the arguments on both sides without prejudice; I have made various experiments; and declared in favour of the opinion which appeared to me to have the strongest support from reason and from facts.

The nature of elastic gases by which the liquefied matters of volcanos are penetrated and agitated, was another subject well deserving attentive consideration. The vacuities, inflations, and tumors, which such matters frequently retain in a state of congelation, can only be ascribed to the elasticity of these gases while they were in a state of liquidity. Our common fire will reproduce in them these gases equally with the volcanic. In fact, many lavas, pumices, glasses, enamels, and scoriæ, though by pulverization they may be deprived of these vacuities, which are more or less large, and usually orbicular, recover them by refusion in the furnace; and in many of these bodies the gaseous bubbles are so abundant, that by their great inflation, while in actual fusion, they force them to flow over the edges of the crucible. These observations led the way to enquiries relative to the qualities of these gases, by lie[illegible]ying in chemical furnaces volcanic substances reduced to powder, and placed in matrices fitted to a chemical mercurial apparatus. By a great number of experiments of [illegible] kind I discovered the true nature of these gaseous substances, of which our knowledge was before very vague and uncertain.

This discovery naturally led to the enquiry what part the elastic gases take in the eruptions of volcanos; and this enquiry to a discussion of the causes of those eruptions.

The chemical processes I employed to ascertain the characters of the gases of volcanic productions likewise discovered to me a new fact, which was, that several of these productions contain muriatic acid. This discovery again produced new enquiries *.

Lastly, I must not omit the researches relative to the origin prismatic or basaltiform lavas. It is an opinion almost universal, that lavas take this regular figure in the [illegible] sudden condensation and [illegible]lation they suffered when they flowed into it in [illegible]id state. I could not have me[illegible] examples of this kind more proper to enable me to form a judgment on the subject than those which presented themselves to my view while coasting the shores of Italy, a great part of Etna, and the whole of the Lipari isles.

These different discussions relative to the efficacy of subterraneous conflagrations, the gas of volcanic productions, the causes of the eruptions of volcanos, and the muriatic acid contained in various of their products; with the enquiries concerning the origin of basaltiform lavas—to treat them at length, as they required, would have too much broken the thread of the narrative of my travels. I have therefore placed them in such a manner as not to interfere with my accounts of the Phlegrean Fields, Etna, and the Eolian Isles.

In the volcanized countries in which I travelled, there are four craters still burning, Vesuvius, Etna, Stromboli, and Vulcano. To all these four, from an ardent desire of obtaining knowledge, I wished to make a near approach. By Vesuvius this wish was not gratified; but Etna was more condescending, though incomparably more formidable, and a similar good fortune attended me at Stromboli and Vulcano. The clear and distinct view I had of these three craters was equally pleasing and instructive. The [illegible]r of Etna I delineated myself; the views of Vulcano and Stromboli are the work of a draughtsman I took with me for that purpose, and who likewise furnished me with

* In these chemical experiments I was greatly assisted by the Signors Nocetti, father and son; the former operator in the public school of chemistry in Pavia, and the latter repeater in the same. They are both [illegible]ersed in chemical science, and are entitled to my grateful acknowledgments.

drawings

drawings of some other volcanic mountains described in this work. I shall only add, that all these designs have been retouched and greatly improved by Sig. Francesco Lanfranchi, an eminent painter in the university of Pavia.

The origin of the Lipari islands, which are the productions of fire, was certainly the principal motive of my visiting them; yet in many other respects they are certainly very interesting. The character, manners, and customs of the inhabitants; their population, agriculture, and commerce, are objects well deserving enquiry, and have the greater claim to the attention of an Italian, from their being so little known in Italy.

I have also made some observations on the animals in those islands, as, for instance, on a kind of birds which with us are birds of passage, but there (in part at least) stationary; I mean swallows. Some years ago I made observations on the natural qualities of several species of swallows (the *hirundo* [illegible], *urbica*, *riparia*, *apus*, *melba*, *Linn.*), and to these I now add those I made in the Lipari islands.

The environs of Messina, where, after I had finished my volcanic travels, I remained more than a month, afforded me much instruction from the variety of natural objects they presented. Though four years and a [illegible] elapsed since that unfortunate city had been laid in ruins by earthquakes, the [illegible] scene was still fresh in every one's memory. A great part of the public and [illegible] edifices were still in the same ruinous condition to which they were reduced by the [illegible] event. Numbers of the inhabitants still continued to lodge in the half-[illegible] houses, and others in huts and sheds; while they all appeared oppressed and overwhelmed with fears from which they had not yet recovered. The impressions made on me by what I saw of the effects of this calamity were such that I could not refrain from giving a brief account of the melancholy situation in which I found Messina, [illegible] of the destruction occasioned by the dreadful earthquake in 1783.

Scylla and Charybdis, the former distant [illegible] miles from Messina, and the latter about a hundred paces within the famous Sea, were two objects to which I [illegible] my attention. That part of the sea being [illegible] as the [illegible] of Messina can be, I was enabled to take a near view of them both, and even to [illegible] Charybdis in a boat. I also made enquiries of the Messinese sailors, who are employed the greater part of the year in that Strait, and consequently have an opportunity of forming a just and precise idea of these two celebrated places; and from what they told me, and the observations I made myself, I am convinced that Charybdis is no real whirlpool, as has been hitherto believed.

In the Strait of Messina I found other instructive natural curiosities furnished by the fisheries for the sword-fish (*Xiphias gladius*, *Linn.*), the ravenous shark (*Squalus carcharias*), and for coral (*Isis nobilis*).

Being at Messina at the time of the annual passage of the sword-fish through the Strait, I was present at the fishery, which appeared to merit some description, from the singular form of the vessels employed in it; the method of striking and taking the fish; and the qualities and periodical migrations of the animal. I have likewise made some observations on some fish of the genus of the *squalus*, particularly the shark, sometimes so dangerous to fishermen in that sea.

Coral, for which the Messinese mariners fish the whole year, by tearing it with nets suitable to the purpose from the rocks at the bottom of their Strait, has been [illegible] an ambiguous production, and made to pass through all the three kingdoms of [illegible]; some considering it as a fossil, others as a vegetable; until at length it has been [illegible] to appertain to the class of animals, though it has the appearance of a plant; [illegible] therefore now properly classed among the zoophyta. The excellent observation of

Peyſſonel and Vitalianio Donati are well known; nor ought Marſigli to be denied the praiſe he merits, though a zealous maintainer that coral is a plant. Notwithſtanding, however, theſe great diſcoveries, much was wanting to a complete hiſtory of this noble zoophyte, to which, I flatter myſelf, I have in ſome ſmall degree contributed by the obſervations I made on it at the time of the fiſhery, at which I was preſent.

On this occaſion, while the fiſhermen were throwing the net for the coral, I employed myſelf in reſearches for marine animalcula. I carefully examined every piece of a ſtalk, leaf, or other fragment of a marine plant, or any thing elſe which hung to the net, having learned from experience that theſe ſubſtances ſometimes contain wonders in the claſs of animated beings; for, as Pliny has wiſely remarked, nature is greateſt in her leaſt productions. When the fiſhermen, therefore, turned up their nets to free them from the weeds which were mixed with the coral, I put theſe weeds into glaſs veſſels, filled with ſea-water, to obſerve the animals adhering to them, and ſelect thoſe which appeared to preſent any remarkable novelty. Several of theſe were not wanting; of the genera of the *aſcidiæ* and the *eſcharæ*. I likewiſe diſcovered ſome ſmall polypi, in which I could diſtinctly ſee the circulation of the fluids; which has not, to my knowledge, been before obſerved in theſe minute animals. The deſcription I have given of them is accompanied with the neceſſary figures.

The ſurface likewiſe of the Strait of Meſſina was equally favourable to my reſearches with the bottom. In other parts of the Mediterranean, the Adriatic, the Archipelago, and the Strait of Conſtantinople, I had examined ſeveral ſpecies of thoſe molluſca which are commonly called meduſæ. I had admired the ſimplicity of their organization, and eſpecially that property by which certain ſpecies of them, of the weight of twenty pounds or more, diſſolve almoſt entirely into a liquor, nothing remaining of them but ſome thin and dry pellicles, which are only a few grains in weight. I had never, however, met with any of that phoſphoreſcent kind which Lœflingius tells us he ſaw in the ocean between Spain and America. The mention he has thus made of them, without adding any further obſervations, can only ſerve to excite the curioſity of the reader; nor do I know that any other author has deſcribed this rare animal. In the Strait of Meſſina I had the pleaſure to find abundance of theſe phoſphoreſcent molluſca, and the ſtay I made in that city afforded me an opportunity to examine their organization, their motion, and the beautiful light they emit in the dark.

I concluded my reſearches relative to the natural objects in the vicinity of Meſſina, by examining the ſhore, hills, and mountains, which on the ſide oppoſite the ſea look toward that city. I could diſcover no ſign of volcanization; but I obſerved, firſt, immenſe maſſes of teſtaceous and other animals petrified, the ſpecies of which were perfectly diſtinguiſhable. Secondly, granite, which probably is a continuation of that of Mezzo, diſtant from Meſſina thirty miles to the north; and with reſpect to which I endeavoured to aſcertain whether it formed ſtrata, as ſome ſuppoſe, or only great maſſes, as the opinion of others; as alſo whether it contained within it petrified marine bodies, as has been conjectured. Thirdly, ſand-ſtone, which, it appears to me probable, forms, in a great meaſure, the bottom of the Strait of Meſſina, extending to the point Peloro, and being reproduced by a petrifying principle. We ſhall ſee that by means of this principle, human ſkeletons, and other extraneous bodies, are ſometimes found included in it; and that, in conſequence of the ſame, at the part near Peloro, where the Strait is narroweſt, it is probable that Sicily, loſing the name of an iſland, will one day be again joined to Italy.

Having made the circuit of the Phlegrean Fields, the Eolian Iſles, and Etna, the principal objects of my travels, I returned to Pavia, going by ſea from Naples, with-

out the leaſt thought of making any new obſervations. But the lake of Orbitello, celebrated for the immenſe quantities of large eels (*Muræna anguilla Linn.*) it produces, became a new incentive to my curioſity; and a dead calm detaining the veſſel in which I had taken my paſſage ſeveral days at Porto Ercole, a few miles diſtant from Orbitello; as I could eaſily obtain as many eels as I choſe, I examined them with great attention, to diſcover, if poſſible, the manner in which they propagate their ſpecies, ſince, notwithſtanding the numerous experiments that have been made both by ancient and modern naturaliſts to elucidate this queſtion, it is not yet known with certainty whether they are viviparous or oviparous. To the experiments I now made, when I returned into Lombardy, I added many others in the following years, made in every ſeaſon.

With this view expreſsly I repaired to the lakes of Comacchio, which, with that above-mentioned, abound more with this fiſh than any in Europe. I here aſſiduouſly ſtudied the various qualities of the animal, in order to illuſtrate its hiſtory, which is in many reſpects deficient and obſcure.

The laſt place at which I landed before my arrival at Genoa, was the iſland of Elba, where I was obliged to remain five days in conſequence of another calm. I profited by this delay to viſit the ancient and celebrated iron mines, where I procured for the Imperial Muſeum at Pavia ſome noble ſpecimens of that metal cryſtallized, and augmented the copious collection I carried with me with ſome ſulphures of iron (pyrites).

I returned to the univerſity about the end of the year 1788, having employed ſix months in my travels in the two Sicilies; with which, though they were at my own expence, like the greater part of my other travels, I am well ſatisfied, ſince I have been able to contribute ſomething to that noble public inſtitution the Muſeum at Pavia; but my ſatisfaction will be ſtill greater, if the work I now preſent to the public be approved by its readers.

Thus I employed the ſummer and autumn vacations of that year. Some time before, but eſpecially in the vacations of 1789 and 1790, I made reſearches among the mountains of Modena and *Reggio, with reſpect to objects which, as they have a relation to* volcanos, may have a place in this work.

The fires of Barigazzo, which burn on the Apennines of Modena, have been long known. Theſe conſiſt of groups of feeble flames collected in a narrow ſpace, which riſe above the earth, are almoſt always viſible, and, if by chance they become extinct, may be rekindled by bringing a ſmall flame to the ſpot where they were. The accounts of them, however, are ſo few, and ſo defective, that at moſt they can only ſerve to compare the preſent ſtate of theſe flames with what it once was. The light afforded by modern phyſics enables us to affirm, without farther examination, that the cauſe of this feeble fire muſt be hydrogenous gas (or inflammable gas). I made a journey to Barigazzo purpoſely to aſcertain this, and found it to be the fact. In that vicinity there are ſix other ſimilar fires, at preſent only known to the Alpine peaſants, all originating from the ſame principle.

But in the preſent accurate ſtate of our knowledge relative to aëriform gaſes, it is too little to ſay and prove that the cauſe of theſe various flames is hydrogenous gas. The following are the principal enquiries which I think it neceſſary for me, as a naturaliſt, to make with reſpect to theſe fires, and ſuch objects as may have a relation to them.

Firſt, to examine the ſtructure and compoſition of thoſe mountains; and here I ſhall incidentally have occaſion to ſpeak of *Cimone*, not far diſtant from Barigazzo, and the higheſt mountain of our Apennines.

Secondly, carefully to remark the qualities of each of theſe fires, and the phenomena accompanying them.

Thirdly, to compare theſe fires nouriſhed by natural hydrogenous gas, with thoſe produced by hydrogenous gas procured by art.

Fourthly, to make a rigorous analyſis of the hydrogenous gas of the fires of Barigazzo and the other neighbouring places, by means of the chemical mercurial apparatus; and to carry to thoſe Alpine heights veſſels to contain the different aëriform fluids, and inſtruments neceſſary for theſe analyſes.

Fifthly, to make the ſame analyſis of the earths from which theſe fires ariſe. And here I muſt obſerve by the way, that having made at Barigazzo an excavation of ſome depth and ſize, in order to obtain the earth pure; the fires multiplied ſo much, and became ſo powerful, that, after I had left the place, the hollow was employed as a furnace for lime, and lime-ſtone as perfectly burnt in it as in furnaces prepared for the purpoſe.

Sixthly, to examine what may be the matters generative of this inexhauſtible ſupply of hydrogenous gas, which has been ſo long continually developed; it being certain, from authentic documents, that theſe fires have burned for a century and a half.

In the hills of Modena and Reggio we find certain places which the people of the country call *Salſe*, and which are a kind of volcanos in miniature, having the form externally of the truncated cone, and internally of the inverted funnel. They ſometimes throw up into the air earthy matters; which at other times overflow, and, pouring down their ſides, form ſmall currents. After the manner of burning mountains, they frequently open with ſeveral mouths, and like them rage, thunder, and cauſe ſlight earthquakes around them. But in the true volcanos the primary agent is fire; in theſe *falſe* the generative principle is entirely different.

Some of them have hitherto remained wholly unknown to naturaliſts; of others authors have written, but have deſcribed the phenomena with little accuracy and frequent exaggeration; not to mention that, at the time when they wrote, the nature of the agent from which theſe phenomena derive their origin was not diſcovered.

Theſe *falſe* have claimed my attention equally with the fires above mentioned; and I have applied myſelf to ſtudy them with equal aſſiduity, and with the ſame chemical analyſis; and as they both, after the manner of volcanos, undergo changes which appear ſometimes to have relation to thoſe of the atmoſphere, I have judged it neceſſary frequently to viſit them, and in different ſeaſons to obſerve the various phenomena, and with more certainty diſcover the ſecret cauſes to which they owe their origin.

The Travels I now preſent to the public, and of which I have here given the ſummary, will be ſpeedily followed by another work containing an account of my voyages to Conſtantinople, in the Mediterranean, and in the Adriatic.

TRAVELS

TRAVELS, &c.

CHAP. I.—A VISIT TO VESUVIUS DURING THE TIME OF AN ERUPTION.

Little notice taken by the Neapolitans of the ſmaller eruptions of this volcano—Phenomena obſerved by the author on his arrival at Naples—His approach near to the crater prevented by ſhowers of ignited ſtones, and acid-ſulphureous fumes—Extraordinary phenomenon relative to theſe ſhowers—Explication of that phenomenon—Remarks on the congelation of a torrent of lava—Obſervations on a ſtream of lava flowing within a cavern—Projected experiment for meaſuring the quantity of heat in the flowing lava—Other obſervations on the lava iſſuing from a ſubterraneous cavity—Remarkable cataract formed by it in its paſſage—Length, breadth, and termination of this torrent—Phenomena of this eruption of Veſuvius compared with thoſe of preceding ones—Erroneous opinion of ſome naturaliſts, that the lava is not fluid, but of the conſiſtence of paſte—Compoſition of this lava—Obſervations on a lava of Veſuvius which flowed in 1785—Proofs that the ſhoerls and feltſpars found in the lava exiſted previouſly in the primordial rocks.

WHEN I arrived at Naples, on the 24th of July 1788, though Veſuvius was not in a ſtate of inactivity, its conflagration was not ſufficient to excite the curioſity of the Neapolitans; who, from having it continually before their eyes, are ſeldom inclined to viſit it, but during its great and deſtructive eruptions. At that time, *during the* day, it without intermiſſion ſent forth ſmoke, which *riſing* formed a *white cloud* round the ſummit, and, being driven by the *north-eaſt* wind, extended in a long ſtream to the iſland of Capri. By night repeated eruptions of fire were viſible, though no ſubterraneous exploſions were to be heard at Naples; and a tract of ground to the ſouth of the crater aſſumed a duſky red colour, which, by the experienced in volcanic phenomena, was ſaid to be preparatory to the flowing of the lava. I ſhould immediately have repaired to the place, had not my friends at Naples aſſured me, from the practical knowledge they had of their burning mountain, that that eruption, which at my arrival was but inconſiderable, would after ſome time become much more extenſive. It was in fact my wiſh to ſee Veſuvius, if not raging with its moſt tremendous fury, at leaſt in a more than ordinary commotion.

I, in conſequence, returned from Sicily to Naples in the beginning of November, when a ſtream of lava, iſſuing from an aperture in the ſide of the mountain, covered a conſiderable extent of ground, and began to be viſible before day-*light*, from beyond Capri, under the appearance of a ſtreak of a reddiſh colour. On the 4th of the ſame month I began my journey to the volcano, and paſſed the night at the Hermitage del Salvatore, two miles from the ſummit of the mountain. Before I retired to reſt, I paſſed ſeveral hours in making obſervations with the greateſt attention; nor could the opportunity have been more favourable, as there was no moon, and the ſky was perfectly free from clouds.

I had therefore a clear view of the eruptions of the mountain, which had the appearance of a red flame, that enlarged as it roſe, continued a few ſeconds, and then diſappeared.

peared. The ejections succeeded each other at unequal intervals of time; but no intermission continued longer than five minutes.

I rose four hours before day, and continued my journey towards the burning crater, from which, as I have before said, flames arose at intervals, which on a nearer approach appeared larger and more vivid; and every ejection was followed by a detonation, more or less loud, according to the quantity of burning matter ejected: a circumstance I did not notice before, on account of the distance, but which became more perceptible to the ear in proportion as I approached the mouth of the volcano; and I observed, when I had arrived within half a mile of it, in a direct line, that the ejections preceded their accompanying explosions only by an instant, which is agreeable to the laws of the propagation of light and sound. At this distance not only flames were visible to the eye, but a shower of ignited stones, which, in the stronger ejections, were thrown to a prodigious height, and thence fell on the declivities of the mountain, emitting a great quantity of vivid sparks, and bounding and rolling till they came within a short distance of the place where I stood. These stones, when I afterwards examined them, I found to be only particles of the lava, which had become solid in the air, and taken a globose form. These showers of lava appeared an invincible obstacle to my nearer approach to the volcanic furnace. I did not, however, lose all hope, being encouraged by the following observation. The showers of heated stones, I remarked, did not fall vertically, but all inclined a little to the west. I therefore removed to the east side of Vesuvius, where I could approach nearer to the burning mouth: but a wind suddenly springing up from the west, compelled me to remove, with no little regret, to a greater distance, as the smoke from the mouth of the crater, which before rose in a perpendicular column, was now drifted by the wind to the side on which I stood; so that I soon found myself enveloped in a cloud of smoke abounding with sulphureous vapours, and was obliged hastily to retire down the side of the mountain. Yet though I was thus disappointed of the pleasure of approaching nearer to the edge of the crater, and observing the eruptions more nearly and accurately, many instructive objects were not wanting. But before I proceed to any remarks on these, I must notice a curious and unexpected circumstance.

I have already spoken of the detonations which accompanied the showers of lava. It is now necessary to add, that these did not constantly accompany every eruption. When I had taken my station in the lower part of the mountain, I found the detonations more sensible, and resembling the noise produced by a large mine when it explodes; but suddenly, to my great surprize, they ceased, though the ejections of fiery matter continued both frequent and copious. I counted eighteen eruptions which were not accompanied by the smallest noise. The nineteenth, though not larger than the former, was followed by its detonation, as were eleven more, though others which succeeded were silent. This irregularity I observed so repeatedly, that the detonations appeared to me rather accidental than necessarily connected with the explosions. In this opinion I am supported by the authority of my ingenious friend, the Abbé Fortis who afterwards told me, at Naples, that he had frequently observed the same inconstancy in the eruptions of Vesuvius.

This peculiar phenomenon, which has not, to my knowledge, been remarked by any one of the numerons authors who have written on Vesuvius, does not appear, at first view, to be easily explicable from the physical cause of the explosions. As it must be allowed that the fire alone is not sufficient to produce it, we must have recourse to an elastic fluid, which disengages itself from the lava, impelling at the same time a part of it into the air; which effect can scarcely happen without a detonation. But on more mature

mature reflection it appeared to me moſt probable that this takes place only with in certain limits. When the elaſtic fluid burſts ſuddenly againſt the lava, it is to be expected that it will produce a conſiderable report; but when it acts ſlowly it will occaſion little or none, though the ejection may be very ſtrong. Thus, if the atmoſpheric air be confined between two pellets of tow in a tube, and one of them be forced ſuddenly towards the other, the latter will be projected to ſome diſtance, with a conſiderable ſound, but none, or very little, will be heard if the pellet be gradually preſſed towards the other. In like manner the air contained in an air gun produces ſcarcely any report on its diſcharge, on account of the interpoſition of the valve delaying its action on the ball.

In what I have ſaid, however, I do not mean to aſſert that theſe volcanic eruptions were entirely unaccompanied with any exploſive ſound. It is highly probable they were not; but that I could not hear the feebler detonations on account of the diſtance.

It has been already ſaid, that the liquid lava had opened itſelf a way, not immediately from the ſummit of the crater, but from one ſide of the mountain. The following are the obſervations made on this ſubject. Towards the ſouth-eaſt, at the diſtance of about half a mile from the crater, on a declivity, there aroſe ſixty or more ſmall columns of ſmoke, one of which was about nine feet in diameter, and came from a not very deep cavern. The ground from which theſe ſtreams of ſmoke iſſued was tinged with yellow, from the muriate of ammoniac, and ſo hot, that even at ſome diſtance, I could bear my feet on it only for a few ſeconds. It is ſufficiently manifeſt that the ſmoke and heat proceeded from the ſame cauſe; that is to ſay, from the ſubterraneous conflagration which communicated with that part, and cauſed the ſmoke to burſt forth through the fiſſures in the ground.

At the diſtance of a few paces from this ſpot, the aperture was viſible through which, ſix months before, the lava diſgorged itſelf, as I was aſſured by my guide; but it *no* longer flowed at the time of my arrival, its current having acquired the *hardneſs* of ſtone. About fifty paces lower, however, *in the ſame direction, that is* towards the ſouth, the lava was *ſtill running within* a kind of pit, but without riſing above its borders; and at a place ſtill lower, about two miles from the principal crater of Veſuvius, the lava iſſued from the ſubterranean cavern, forming in the open air a long current. But before I proceed to deſcribe the latter, it will be proper to notice the highly curious phenomena obſervable in the lava moving within the above-mentioned cavity or pit. This pit was of a ſhape approaching to an oval, about twenty three feet in circuit. The ſides, or banks, were nearly perpendicular, about four feet and a half in height; and it was excavated in the hardened lava of the laſt eruption. The burning lava moved within this cavern, of which it covered the whole bottom, in the direction of from north to ſouth. From it aroſe a cloud of ſmoke, which reflecting the light from the red hot lava, produced in the air a red brightneſs, that during the night might be ſeen at a conſiderable diſtance. But as this ſmoke was ſtrongly impregnated with acid-ſulphureous vapours, I found it a great obſtacle to my making any obſervations on the liquid lava, when, from the calmneſs of the air, it aſcended perpendicularly. But, from time to time, a ſlight breeze aroſe which carried the ſtream towards one ſide; and I then removed to the oppoſite, where I was no longer incommoded in my experiments by the vapour. During theſe favourable intervals, I could ſtoop down towards the pit, in which I obſerved the appearances which I here faithfully relate.

At the diſtance between the lower extremities of my body and the lava was only five feet, the heat it ſent forth was very vehement, but not abſolutely intolerable, though it forced me to remove from it a little, from time to time.

I obſerved

I obſerved then that the lava flowed, as I have before ſaid, along this cavity, from the north to the ſouth, and then diſappeared under the excavated hardened lava. Its ſurface exhibited the redneſs of burning coal, but without the ſmalleſt appearance of flame. I know nothing to which it can be more properly compared than melted braſs in a furnace. This ſuperficies was in ſome places covered with a white froth; and from time to time bubbles aroſe in it, which burſt a moment after with a ſenſible noiſe. Sometimes, likewiſe, the lava roſe in ſmall jets or ſpouts, which, in an inſtant after, ſubſided, and the ſurface again became ſmooth and even.

The nearneſs of my approach to this melted matter, which I obſerved, firſt, during the darkneſs of the night, and afterwards by the light of day, removed every ſhade of doubt or uncertainty reſpecting the remarks I made. It likewiſe furniſhed me with an opportunity to make ſome experiments which I otherwiſe could not have made. I was deſirous to let fall ſome heavy body into the flowing lava; but my ſituation would only permit me to uſe, for this purpoſe, pieces of lava which lay round the cavern, as I could find no ſubſtance of any other kind. When I threw theſe pieces into the lava, they occaſioned that dull kind of ſound which would have been produced by ſtriking ſoft earth or thick mud; and at the ſame time formed in the lava an incavation, in which they were buried about one third part of their bulk, and in this ſituation were carried away by the current. The ſame happened when I, at other times, uſed larger pieces, and threw them forcibly into the lava; the only difference was that then they ſunk in deeper.

From this experiment I aſcertained the velocity of the lava, as it is certain that muſt have been the ſame with that of the ſtone carried by it. In about half a minute, the pieces of ſolid lava were carried ten feet and a half. The motion of the current was therefore very ſlow; which was not ſurpriſing, as the declivity was very little. We ſhall ſee preſently, that the pieces of lava with which I made my experiment, were probably of the ſame kind with the lava which was flowing; on which account I, at firſt, expected that they woud have ſunk entirely within it, ſince it is well known that all bodies which paſs from a fluid to a ſolid ſtate become more compact; but a moment's reflection convinced me that the fact could happen no otherwiſe than it did. The pieces of lava which I threw into the current were full of pores and cavities, which in the liquid lava could not have place, or at leaſt could not be ſo numerous; theſe pieces, therefore, muſt be lighter than the liquid lava. Another reaſon, which I conſider as ſtill more deciſive, is derived from the tenacious liquidity of the flowing lava, which muſt prevent the entire immerſion of the ſolid lava, though the latter ſhould be ſpecifically heavier. Thus I have obſerved that a ſolid globe of glaſs, though thrown with ſome force into a liquid maſs of the ſame matter, will not remain entirely ſubmerged, but float with a part above the ſurface.

I would willingly have made another experiment, which I ſhould have conſidered as of much greater importance; but I had not with me the inſtruments neceſſary to undertake it; becauſe I had not the leaſt expectation that I ſhould have been able to approach ſo near to the flowing lava as would have given me an opportunity to have uſed them.

The experiment I mean was to have aſcertained the degree of abſolute heat of the flowing lava, and might have been very conveniently made at this place. As therefore circumſtances did not permit me to make a ſecond viſit to Veſuvius, and as theſe cavities which receive into them the flowing lava are frequently met with in volcanic eruptions, it may not be improper here to detail the nature and mode of the experiments I would have made, had I been furniſhed with the neceſſary means, in hope that ſome

ſimilar

ſimilar opportunity may induce ſome one of the few naturaliſts of Naples who are deſirous to enlarge the knowledge we have of their volcano, to carry them into effect.

Firſt, therefore, I would have let fall on the lava within that cavity two kinds of ſubſtances, inflammable and fuſible, contriving ſome means to keep them fixed in the ſame place; punctually noticing the time required for the inflaming of the former and the fuſion of the latter. I would then have expoſed the ſame ſubſtances to our common fires, until the ſame effects had been produced, obſerving the difference of time between the production of the effect by the volcanic fire and the common. I ſhould thus have obtained a term of compariſon of great utility in the inquiry propoſed. But a method more preciſe and certain, would be to make uſe of the pyrometer of Mr. Wedgwood *; which ſhould be uſed in the following manner; to aſcertain the abſolute heat of the ſuperficies of the lava, one or more of the cylinders of clay ſhould be let down upon it, incloſed in the box of the ſame earth adapted to them, faſtened to an iron chain that it may not be carried away by the current, and the experiment prevented. This being taken up, after having been ſuffered to remain there ſome hours, the ſhortening of the cylinders would ſhew the quantity of abſolute heat they had ſuffered, and, conſequently, that of the lava on which they had reſted.

But with this experiment alone I ſhould not have been entirely ſatisfied. By the aſſiſtance of this ſame pyrometer, I would have endeavoured to diſcover the internal abſolute heat of the lava, by immerging within it ſome of the cylinders I have before mentioned, incloſed in a thick hollow globe of iron, faſtened to a chain of the ſame metal. The infuſibility of iron in our common furnaces inclines me to believe that it would reſiſt the heat of the liquid lava; but ſhould it not, its melting would ſupply the place of a pyrometer, and ſufficiently prove the violence of the heat.

I am aware that theſe experiments would not aſcertain, with preciſion, the heat of other torrents of lava, which muſt neceſſarily depend on the greater or leſs *depth of* the ignited matter, its diſtance from the principal ſeat of the conflagration, *and the* different qualities of the lava. But they muſt have been of *conſiderable* importance, and I can never ſufficiently regret not having had it in my power to make them.

It may, perhaps, be doubted whether the globe of iron I have mentioned could be made to penetrate through the tenacious ſuperficies of the lava: but there ſeems little reaſon for this doubt, when we conſider that the pieces of porous lava, which are far lighter than this metal, penetrated it to one third of their bulk. And though it ſhould not be able to divide that part of the ſuperficies which, by being in contact with the air, has leſs liquidity; that might be ſeparated by other means, and the globe immediately plunged into the more fluid part of the lava.

I do not deny but that theſe and other ſimilar experiments are difficult, offenſive, and, in ſome degree even dangerous; but what experiment can be undertaken perfectly free from inconvenience, and all fear of danger, on mountains which vomit forth fire? I would certainly adviſe the philoſopher who wiſhes always to make his obſervations entirely at his eaſe, and without riſk, never to viſit volcanoes.

But it is time to continue my narrative of the phenomena I obſerved in this eruption of Veſuvius. Though the lava iſſued at its origin from only a narrow aperture, the ſtream of it became conſiderably enlarged as it deſcended the declivity of the mountain, and formed other ſmaller torrents: but at about the ſpace of a mile from the mouth whence it iſſued, its ſuperficies had acquired the ſolidity of ſtone. I endeavoured to paſs over this, notwithſtanding the difficulty of walking on it, as it was en-

* See the Introduction.

tirely

tirely compoſed of ſmall disjoined ſcoriæ, on which the foot could not reſt with firmneſs, and ſo hot that I was obliged to change my ſhoes, thoſe I had being worn out, and half-burnt.

Beſides two other pits, ſimilar to that I have deſcribed, and ſome burning orifices in which, when I looked into them, I could perceive the liquid lava reſembling melted glaſs in a furnace when it burns with the utmoſt violence; I obſerved, likewiſe, the traces of the courſe which the lava had taken or reſumed. Here the channels through which it had flowed remained, but empty; there ſome reſidue of it was to be ſeen; and others were full of it. One had the form of a cylindric tube, and another that of a parallelopiped. But the direction of all theſe channels through which the lava had flowed was towards the ſouth. It did not require much attention to perceive, that under the ſolid lava on which I walked the fluid was ſtill running; the low but diſtinct ſound it occaſioned in its paſſage was clearly perceptible to the ear.

A ſufficient illuſtration of what I mean may be given from what frequently happens, in winter to many ſlow ſtreams, in the northern parts of Italy. In theſe, when the winter is ſevere, the ſuperficies of the water at firſt adheres to the banks, and afterwards congeals in the middle, forming a cruſt of ice which increaſes in thickneſs, from night to night, while the water, which is ſtill fluid, if there is ſufficient depth, continues to run under it; though the thickneſs of the ice increaſes, till after ſome days it is ſufficiently ſtrong to bear men to walk on it, or even greater weights. If any perſon ſhould then go upon it, and apply his ear cloſe to it, he would hear the ſound of the water running under, as I have ſeveral times experienced in the vicinity of Pavia. This ſound appears to me to be preciſely the ſame with that occaſioned by the Veſuvian lava flowing under the ſolid lava, and proceeds doubtleſs from the ſame cauſe; I mean the obſtacles the fluids meet with and ſtrike againſt in their paſſage; as the cauſe of congelation is likewiſe the ſame in both, that is, the privation or rather the diminution of their abſolute heat.

Purſuing my way to the ſouth, along the declivity of the mountain, I arrived at the part where the lava ran above the ground. Where the ſtream was broadeſt, it was twenty-two feet in breadth, and eighteen where narroweſt. The length of this torrent was two miles, or nearly ſo. This ſtream of lava when compared with others which have flowed from Veſuvius, and extended to the diſtance of five or ſix miles, with a proportionate breadth, muſt certainly ſuffer in the compariſon; but conſidered in itſelf, and eſpecially by a perſon unaccuſtomed to ſuch ſcenes, it cannot but aſtoniſh and moſt powerfully affect the mind. When I travelled in Switzerland, the impreſſion made upon me by the Glacieres was, I confeſs, great; to ſee in the midſt of ſummer immenſe mountains of ice and ſnow, placed on enormous rocks, and to find myſelf ſhake with cold, wrapped up in my peliſſe on their frozen cliffs, while in the plain below Nature apeared languid with the extreme heat. But much more forcibly was I affected at the ſight of this torrent of lava, which reſembled a river of fire. It iſſued from an aperture excavated in the congealed lava, and took its courſe towards the ſouth. For thirty or forty paces from its ſource, it had a red colour, but leſs ardent than that of the lava which flowed within the cavern I have mentioned above. Through this whole ſpace its ſurface was filled with tumours which momentarily aroſe and diſappeared. I was able to approach it to within the diſtance of ten feet; but the heat I felt was extremely great, and almoſt inſupportable, when the air, put in motion, croſſed the lava, and blew upon me. When I threw into the torrent pieces of the hardened lava, they left a very ſlight hollow trace. The ſound they produced was like that of one ſtone ſtriking againſt another; and they ſwam following the motion of the ſtream. The torrent at

firſt deſcended down an inclined plain which made an angle of about 45 degrees with the horizon, flowing at the rate of eighteen feet in a minute; but at about the diſtance of thirty or forty paces from its ſource, its ſuperficies, cleared from the tumours I have before mentioned, ſhewed only large flakes of the ſubſtance of the lava, of an extremely dull red, which, claſhing together, produced a confuſed ſound, and were borne along by the current under them.

Obſerving theſe phenomena with attention, I perceived the cauſe of this diverſity of appearance. The lava, when it iſſued from the ſubterranean caverns, began, from the impreſſion of the cold air, to loſe its fluidity, ſo that it yielded leſs to the ſtroke of ſolid bodies. The loſs of this principle, however, was not ſuch as to prevent the ſuperficies from flowing. But at length it diminiſhed by the increaſing induration; and then, the ſuperficial part of the lava, by the unequal adheſion of its parts, was ſeparated into flakes, which would have remained motionleſs had they not been borne away by the ſubjacent matter, which ſtill remained fluid, on account of its not being expoſed to the immediate action of the air, in the ſame manner as water carries on its ſurface floating flakes of ice.

Proceeding further, I perceived that the ſtream was covered, not only with theſe flakes, but with a great quantity of ſcoriæ; and the whole maſs of theſe floating matters was carried away by the fluid lava, with unequal velocity, which was ſmall where the declivity was ſlight, but conſiderable when it was great. In one place, for ten or twelve feet, the deſcent was ſo ſteep that it differed but little from a perpendicular. The lava muſt therefore be expected there to form a cataract. This it in fact did, and no ſight could be more curious. When it arrived at the brow of this deſcent, it fell headlong, forming a large liquid ſheet of a pale red, which daſhed with a loud noiſe on the ground below, where the torrent continued its courſe.

It appeared to me that it might be expected that, where the channel was *narrow*, the velocity of the torrent muſt be increaſed, and where it was *capacious diminiſhed*; but I obſerved that, in proportion as *it removed from its ſource, its progreſſive* motion became *ſlower*: and *the reaſon for this is extremely obvious*; ſince the current of melted matter being continually expoſed to the cold air, muſt continually loſe ſome portion of its heat, and, conſequently, of its fluidity.

At length the lava, after having continued its courſe about two miles, along the declivity of the mountain, ſtopped, and formed a kind of ſmall lake, but ſolid, at leaſt on the ſuperficies. Here the fiery redneſs diſappeared; but about two hundred feet higher it was ſtill viſible, and more apparent ſtill nearer to its ſource. From the whole of this lake ſtrong ſulphureous fumes aroſe, which were likewiſe to be obſerved at the ſides where the lava had ceaſed to flow, but ſtill retained a conſiderable degree of heat.

After having written theſe obſervations on the lava ejected by Veſuvius, as it appeared from its ſource to its termination, which I made in company with Dr. Comi Abruzzeſe, a young ſtudent of great promiſe in medical and phyſical ſcience, I had an opportunity to read the accounts of former eruptions, as they have been given by men of great abilities, who had obſerved them on the ſpot, I mean Dr. Serao, Father Della Torre, M. Deluc, and Sir William Hamilton. I perceive that in the principal facts, the phenomena I have obſerved agree with their obſervations, and that the differences are but few. Thus the torrents of lava which they have deſcribed were accompanied with great fumes, and covered with pieces of lava and ſcoriæ. In like manner the liquid lava received but ſmall impreſſions from the ſtroke of ſolid bodies, and ſometimes none. Serao informs us, that the lava of 1737, when ſtruck on the ſurface

with long pointed ſtaves, was found to be ſo hard that it reſounded. According to the obſervation of Father Della Torre, the thick lava of the eruption of 1754, when raiſed with long poles, ſplit into pieces. M. Deluc ſhewed me, ſome years ſince, in his private cabinet of natural hiſtory, at Geneva, a piece of Veſuvian lava, of the eruption of 1758, marked with a ſlight impreſſion, which he made on it, on the ſpot, while it retained its ſoftneſs. If this naturaliſt ſhould ever chance to come to Pavia I could ſhew him, in return, in the public Imperial Muſeum, among the collection of volcanic productions which I have made, a cylinder of lava, eighteen inches long, and five and a half thick, which, in one part, has been bent to an angle, while it was half liquid, by the hands of the guide who accompanied me when I viſited the eruption I have above deſcribed. In the eruption of 1766, likewiſe, though the lava flowed with ſurpriſing velocity, we are told by Sir William Hamilton, that it received but a very ſlight impreſſion from ſome large ſtones that he threw into it. Father Della Torre has alſo remarked another phenomenon which I obſerved, and have deſcribed, relative to the effervеſcence and tumors of the fluid lava.

But my meeting with the ſubterranean cavity in which the lava flowed, was a fortunate and ſingular circumſtance, which is not, that I know of, mentioned by any one elſe, becauſe probably it was not ſeen; ſince all the deſcriptions of eruptions which we have, relate ſolely to currents of lava running over the ſurface of the ground, expoſed to the free action of the air; from the effect of which the lava muſt ſoon cool and harden; as appears from the very ſlight impreſſion made by ſtones thrown into it, according to all the accounts I have cited, and my own obſervations. But the narrowneſs of this cavern, and in ſome meaſure its depth, prevented this action of the air; whence I was enabled to obſerve the lava in a ſtate in which it cannot be ſeen above the ground, ſtill retaining a great part of its fluidity, as appeared from its from time to time ſpouting into the air, and from the impreſſions made on it by the pieces of lava thrown into it. It cannot, therefore, be doubted but it had a much greater degree of fluidity when it boiled up in the Veſuvian furnace; as it muſt then have been penetrated with a greater quantity of abſolute heat, by the action of which its parts muſt have been more diſjoined and ſeparated, and therefore have poſſeſſed a greater degree of fluidity and mobility. But I ſhall adduce ſtill ſtronger reaſons to prove the great fluidity of the lava, when it foams and boils up in its craters, when I come to ſpeak of the volcano of Stromboli. I dwell the longer on this ſubject, becauſe I know ſome have denied that the lava is ever fluid, aſſerting, that it has only the conſiſtence of paſte moiſtened with a good deal of water, and deſcends down any declivity in conſequence of its gravity.

To complete the obſervations I have made on this eruption, nothing appears to remain but to ſpeak of the quality of the ejected lava. On this I made different experiments, all of which, ſome extrinſic or accidental circumſtances excepted, furniſhed the ſame reſults. The baſe of the lava is of horn-ſtone rock, of a dark-grey colour, of moderate hardneſs, dry to the touch, where it has been freſh broken ſomewhat earthy, and gives ſome ſparks with the ſteel. This lava put the magnetic needle in motion at the diſtance of three lines and a half, or ſomewhat more than a quarter of an inch.

It is well known to volcanic naturaliſts, that many of the lavas of Veſuvius contain colourleſs garnets. In that of which I treat, they were found very numerous, though very ſmall. When broken, they appeared glaſſy; and ſometimes a kind of ſide or face was viſible, though without its being poſſible to determine the quality of the cryſtallization, not ſo much from their ſmallneſs as from their being too intimately incorporated with their tenacious matrix. With the garnets were united a number of ſhoerls, of the colour and luſtre of aſphaltum, vitreous cryſtallized in faces, the largeſt of which was

nearly five lines. Thoſe which were found in the running lava had received no injury from the fire; but thoſe in the globes ejected from the crater in that eruption, were in a ſtate of beginning fuſion.

The fire of the furnace changed this lava into a kind of enamel, full of bubbles, of the colour of pitch, ſhining, which gave ſparks with ſteel, and adhered ſtrongly to the ſides of the crucible *. The ſhoerls melted, but the garnets did not; they only became whitiſh, but without entirely loſing their vitreous appearance.

After having made my obſervations on the phenomena exhibited by the ſtream of lava then running, I proceeded to examine the veſtiges of others which had flowed ſome time before; one of which, in November 1785, had iſſued at about one third of a mile from its crater, on the ſide of Monte Somma. As I do not know that any notice has yet been taken of it by others, I ſhall relate the obſervations I made as I paſſed over the remains of it, and likewiſe the information given me concerning it by my guide, and ſome perſons who cultivate the ſtudy of Natural Hiſtory, who had obſerved it on the ſpot at the time of its eruption.

Although at its ſource it was but narrow (as generally happens to theſe ſtreams of lava,) it afterwards became conſiderably enlarged, and did not form ſmall, disjoined, and rugged pieces like the others I have deſcribed; but large maſſes, many feet in breadth and depth, and ſeparated by numerous fiſſures. Its ſuperficies preſented an appearance not a little curious. It was rugged and irregular, from an immenſe number of ſmall cylindric bodies reſembling twiſted cords, and which were only the lava itſelf reduced into ſtriated and contorted fibres, when near the end of its courſe, and ready to congeal. In its qualities it did not appear to me to differ from the other Veſuvian lava I had already examined, either in its baſe or the garnets and ſhoerls which it contained.

The greater part of this lava lies in a valley under Maſſa, and on one ſide of Salvatore. Before it arrived there, it muſt have fallen from a high rock, and conſequently formed a cataract, which, when ſeen by night, I was told, exhibited a moſt wonderful ſpectacle to the eyes of beholders. But though its fall through the air muſt have been very conſiderable, and it muſt in conſequence have loſt much of its heat, when it reached the ground it continued ſtill to flow for a conſiderable ſpace. On the ſide of Maſſa, I obſerved that it had approached within ten or twelve feet of ſome oaks which grew on the ſide of a precipice. Some of them appeared entirely withered; others preſerved their verdure only on that ſide of the trunk and branches which was oppoſite to that next the lava. In its paſſage it did ſuch damage to a ſmall church called *Madonna della Vetrana*, that it has ever ſince remained deſerted. The fiery torrent took it in front, and broke down the wall, which indeed required no great force, as it was built with ſoft ſtones of tufa brought from the neighbouring mountains of Maſſa, and much like that of Naples. Thence it penetrated into the church, and having deſtroyed the door on the oppoſite ſide, and beat down a part of the wall, continued its courſe, through the church, within which it was obſerved to flow with greater velocity than the reſt of the ſurrounding lava, from being confined by the walls on the ſides. With this lava the floor of the edifice ſtill continues covered, and the contiguous ſacriſty partly filled; while large pieces of the broken wall, which the torrent had carried away, lie at more than eighty

* To avoid repetitions, I ſhall here mention, that, when I uſe the word *furnace* without any other addition, I always mean the furnace of a glaſs-houſe; and that by the term *enamel*, I underſtand, with the generality of our chemiſts, a ſubſtance produced by heat, reſembling glaſs, but without its tranſparency. It may alſo be proper to add, that, as often as an entire fuſion of the lava took place in the crucibles, it adhered ſtrongly to the ſides.

feet

feet diſtance from the church, in the middle of the hardened lava.—Some linden trees are likewiſe to be ſeen ſurrounded by the ſame, the trunks of which are blackened and burnt. The lava, as I was aſſured, continued to flow fifteen months; and when I viſited the place, which was ten months after it had ceaſed to flow, it was ſtill warm, and emitted thin fumes.

On one ſide of Veſuvius, about a mile below Salvatore, is a ſpacious cavern, which widens as we deſcend into it, called the *Foſſa Grande*. I took this way to return to Naples, and gained from it conſiderable and uſeful information. It is well known what doubts have been entertained relative to the ſhoerls and feltſpars which are uſually found, either conjointly or ſeparately, in the lavas; I mean whether they have been formed within them, either while they were fluid, or at the time of their congelation; or whether they exiſted in the original rock before the fire changed it into lava. Bergman has ſtated the arguments on each ſide, but has left the controverſy undecided. It is true, that, when that chemiſt wrote on volcanic productions, the opinion was, with good reaſon, moſt prevalent, which ſuppoſes that the ſhoerls and feltſpars exiſted originally in the primordial rocks. This hypotheſis has received conſiderable ſupport from the pieces of rock anciently thrown out of Veſuvius, which are to be found on the ſurface of the ground; or by ſearching and digging in the tufaceous matters of the *Foſſa Grande*.

But it is neceſſary to proceed to particulars. One ſpecies of theſe rocks is of a margaceous nature, the carbonate of lime however prevailing. As this did not appear to be at all calcined, but unchanged, and ſimilar to ſtones of the ſame kind which are not volcanic, it afforded a convincing proof that theſe rocks have received no ſenſible injury from the fire; but if we break ſome of theſe, we ſhall find in them numbers of feltſpars, which, in their cryſtallization, and other exterior characters, extremely reſemble many of thoſe we meet with in ſome lavas of Veſuvius, and other neighbouring volcanic places. Still more numerous alſo are the ſhoerls of a ſhining black; ſome of the ſhape of needles, and others of priſms, and varying in their ſize; ſome being ſo ſmall as to be ſcarcely viſible, and others of the length of ſeven lines, or above half an inch, and broad in proportion. Theſe pieces of rock do not form veins, ſtrata, or great maſſes, but are diſtributed in different places in ſcattered fragments.

Here likewiſe we find various pieces of granite, not in the leaſt injured by the fire; the quartz of which, beſides mica, is accompanied by feltſpars and ſhoerls, which in no reſpect differ from the volcanic ſhoerls and feltſpars.

I might have conſiderably extended theſe remarks on the ſpecies of rock thrown out by the Veſuvian fires without receiving injury or change; but I think that what I have ſaid will be ſufficient to ſhew, that, in order to account for the preſence of feltſpars and ſhoerls in lava, and their various cryſtallizations, it is not neceſſary to ſuppoſe them formed within it, either when it was fluid, or at the time of its congelation; ſince we meet with ſimilar vitreous bodies in the ſubſtances from which it derives its origin.

CHAP. II.—THE GROTTO OF POSILIPO.—SOLFATARA.—THE PISCIARELLI.

The city of Naples founded on volcanic ſubſtances.—Different opinions relative to the origin of volcanic tufas.—Thoſe of Poſilipo appear to have been formed by thick eruptions.—Lavas on the road to Solfatara deſcribed.—Specular iron found in one of theſe.—Solfatara is not an iſolated mountain, as has been ſuppoſed by ſome.—Sulphures of iron (or pyrites) lavas of Solfatara, and the Piſciarelli.—Obſervations on the decompoſition of lava, and the ſhoerls and feltſpars which are found within it; as alſo on the ſulphureous-acid fumes which inceſſantly exhale from this volcano.—Conjecture that Solfatara has ariſen out of the ſea.—Method lately employed to extract, more abundantly than formerly, alum and ſal ammoniac from this volcano.—Critical diſquiſition relative to a curious phenomenon in the vicinity of Solfatara, from which M. Ferber conjectures that the level of the ſea has there ſunk nine feet.

DURING my ſtay at Naples, I determined to viſit the other principal Phlegrean fields, as well as Veſuvius, and I had the good fortune to meet with, and have for a companion, the Abbé Breiſlak, formerly profeſſor of philoſophy at Rome, and of mathematics in the Nazarene College; and now director of Solfatara, near Pozzuolo.

The beautiful city of Naples is entirely founded on volcanic ſubſtances. Among theſe the tufa predominates, which has alſo contributed not a little to the materials of many buildings. To the north and weſt it is accumulated in large heaps, and forms ſpacious hills. A philoſophical ſtranger, on his arrival in this country, when he views theſe immenſe maſſes of a ſubſtance which muſt excite in his mind the idea of fire, cannot but feel aſtoniſhment, and enquire with a kind of ſerious thoughtfulneſs, what has been their origin. It is known that on this ſubject naturaliſts are divided. Some conjecture that the volcanic tufa was generated within the ſea when it bathed the foot of the burning mountains; others ſuppoſe that the cinders ejected by the fire have, in a long courſe of years, been hardened into this ſpecies of ſtone by the filtration of rain water; laſtly, others incline to think that the tufa derives its origin from the ſlimy and fluid ſubſtances thrown out by the volcanos in ſome of their eruptions.

The diverſity of volcanic tufas has perhaps been the cauſe of theſe different opinions, each of which may poſſibly be true with reſpect to different kinds of tufa. Thoſe, however, which are found in the vicinity of Naples are probably the produce of thick eruptions, as we may conclude from the curious diſcovery of Sir William Hamilton, who, in digging up in the tufa which had covered Herculaneum, the head of an ancient ſtatue, obſerved that the perfect impreſſion of the head was viſible in the tufa, which cannot be ſuppoſed to have happened but by its having enveloped the ſtatue in a liquid or moiſt ſtate.

To the obſervation of Sir William let me be permitted to add one of my own, which I made in the grotto of Poſilipo. It is well known that this grotto has been excavated within the tufa, and ſerves as a public road from Naples to Pozzuolo. This tufa, which is of a clear grey, has for its baſe an earth in part argillaceous, of a ſlight hardneſs, which contains vitreous flakes, pieces of feltſpars and fragments of yellowiſh pumice-ſtone, which by the changes it has undergone has become extremely friable, and almoſt reducible to powder. This tufa has been in ſome meaſure analyſed by the excavation made in it by art, which furniſhes a proof of the nature of its origin. For if any perſon,

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in the ſummer time, enters the grotto about the riſing of the ſun, ſince at other times of the day there is not ſufficient light, the ſolar rays, ſhining on the entrance which looks towards Naples, will ſufficiently illuminate the roof and ſides to ſhew layers or lakes, ſimilar to thoſe which may be obſerved on the ſteep ſides of mountains, or in perpendicular ſections of the earth, in low places, where ſediments of various kinds of ſlime have been formed by the inundations of the rivers. It ſeems, however, impoſſible to doubt that this accumulation of tufa, through the midſt of which the Romans opened that long and ſpacious grotto, has been produced by the thick eruptions which have frequently iſſued from volcanos, and which, heaping up one upon another, have hardened in time into this tufaceous ſtone; ſince both Veſuvius and Ætna furniſh ſufficient examples of ſuch eruptions. And as in many other tufas in the vicinity I have obſerved a ſimilar conſtructure, I cannot ſuppoſe their origin to have been different.

Coming out of this ſubterraneous paſſage and proceeding towards Solfatara, I obſerved, on the right hand ſide of the road, a ridge of lava, nearly parallel with it, which had every appearance of having been thrown out of the volcano when burning, both becauſe it was extremely near to it, and had its higheſt part in that direction. Its thickneſs exceeded five-and-thirty feet, and it was ſituated between two layers of tufa, one above and the other below. It formed a high rock, perpendicular to one ſide of the road. A number of labourers were continually employed in ſeparating pieces of this lava with pickaxes, or other inſtruments proper for ſuch work. It is compact, heavy, ſomewhat vitreous, gives ſparks with ſteel, and appeared to me to have for its baſe the petroſilex. Incorporated with it are found ſhoerls and feltſpars. The former are ſhining, of a dark violet colour, in ſhape rectangular needles, vitreous, in length from the ſixth of a line to two lines: it beſides contains a conſiderable quantity of others which have no regular form. But the feltſpars are more conſpicuous than the ſhoerls, both from their larger ſize and greater number. They are in general of a flat rhomboidal form, and conſiſt of an aggregate of ſmall white lamellæ, duly tranſparent, brilliant, marked with longitudinal ſtreaks parallel to each other, cloſely adhering together, but eaſily ſeparated by the hammer, giving ſparks with ſteel more readily than the lava; and, in the full light of day, exhibiting that changing colour which uſually accompanies this ſtone. The largeſt are ten lines long and ſix broad, and the ſmalleſt exceed one line. The ſhoerls are alſo found in the lava, in the ſame manner, and are ſo fixed in it, that they occupy nearly the half of it. It is impoſſible to extricate them entire. They are diſtributed within it without any order, and frequently croſs and interſect each other at right angles.

In ſome ſituations of this lava, which are more than others expoſed to the inclemency of the air and ſeaſons, the feltſpars are viſible on the ſuperficies, by a mixture of emerald and purple, probably occaſioned by the action of the atmoſphere, as from the ſame cauſe ſome volcanic vitrifactions acquire externally their peculiar colour.

This lava has not equal ſolidity throughout, being in ſome places porous, or rather cavernous; and, in ſome of its varities, it was remarkable, that it abounded with ſpecular iron. This was found in very thin leaves, for the moſt part, cloſely connected together. Theſe are extremely friable; and the finger being paſſed over them, they adhere to it like particles of mica. But their ſmall ſize, which in the largeſt is ſcarcely a line, renders it neceſſary to make uſe of a lens to examine them properly; by the aid of which we ſhall find that they are of very different ſhapes, have the luſtre of burniſhed ſteel, and that many of them appear to be aggregate of ſmall thin ſcales, cloſely united.

This iron acts on the magnetic needle, at the diſtance of two lines. Like many other irons expoſed to the air, it has acquired polarity; attracting the needle on one ſide, and repelling it on the other.

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When we extract theſe thin ſcales of iron from the lava, and examine them with the lens, there frequently appear, intermingled with them, various fragments of microſcopic tranſparent priſms, which I at firſt thought to be ſhoerls or feltſpars, but which afterwards I rather conceived to be zeolites, as they exhibited the appearance of radii diverging from their centre; but their extreme minuteneſs rendered it impoſſible accurately to aſcertain their ſpecies.

Proceeding along the road to Solfatara, we find on the left hand a natural ridge of rock, formed of a very light lava, the baſe of which is horn-ſtone, of the colour of blue baked brick, of a coarſe earthy grain, which attaches ſlightly to the tongue, and gives an argillaceous ſcent on wetting it, or even merely moiſtening it with the breath *.

It is very probable that this lava has been decompoſed, and that the decompoſition has penetrated to the feltſpars with which it abounds, as they are become very friable, though they in general ſtill retain their natural brilliancy.

Having made theſe curſory obſervations, I proceeded to Solfatara: nor did I ſatisfy myſelf with one viſit only, but repeated it ſeveral days; being extremely deſirous carefully to examine, and gain every information relative to a place ſo celebrated.

From reading the notes of M. Dietrich to M. Ferber's Travels in Italy, I had been induced to imagine that Solfatara was a mountain iſolated on every ſide †; but the truth is, it is connected with the other neighbouring mountains, with which it forms an uninterrupted chain of conſiderable extent.

It would be but of little utility for me to deſcribe at length the form, extent, and circuit of this Phlegrean field; the various qualities of the hot vapours which exhale from it; or the hollow noiſe which is heard on ſtriking the ground in various parts of it; not that theſe circumſtances were not carefully examined by me; or that I think them unworthy of my narrative; but becauſe it appears to me unneceſſary to enlarge on them, as they have been already repeatedly deſcribed by a great number of travellers. It will, in my opinion, be more agreeable to the naturaliſt to proceed to a minute examination of the principal productions of this yet unextinguiſhed volcano, as they have hitherto been, for the moſt part, either unobſerved, or paſſed over in ſilence.

In the obſcurity and uncertainty in which we find ourſelves, relative to the cauſes productive of ſubterraneous conflagrations, the ſpontaneous inflammation of ſulphures of iron (or pyrites) has been conſidered as one of the moſt probable. The well-known experiment of Lemery, by which a ſimilar conflagration is produced by mixing filings of iron with powdered ſulphur properly moiſtened, has given great ſupport to this opinion. But ſulphures of iron, in volcanic countries, are leſs frequent than has been ſuppoſed. This has been clearly proved by the accurate obſervations of mineralogiſts who have written on them. And though Sir William Hamilton expreſsly affirms that both Etna and Veſuvius abound with them ‡, it is now well known that he miſtook the ſhoerls for ſulphures of iron (or pyrites), from want of mineralogical knowledge. In fact, Signior Dolomieu, in his *Catologo Ragionato de' Prodotti dell' Etna*, mentions only one ſingle piece of lava as containing ſulphur of iron: and the Chevalier Gioeni, in his *Litologia Veſuviana*, has never noticed any ſuch production. In Vulcano and Stromboli, two iſlands which are in a ſtate of actual conflagration, I could trace no veſtiges of ſuch

* In many lavas the ſcent of clay is perceived, on moiſtening them with the breath, or by other means: wherever, therefore, I may hereafter mention the argillaceous ſcent of lava, I always underſtand it to have been objected to this humectation, though I omit to mention it, to avoid prolixity.

† "La Solfatare repréſente encore aujourd'hui une montagne aſſez élevée et iſolée de tous côtés."—*Lettres ſur la Minéralogie, &c. d' Italie, &c.*

‡ Both theſe mountains abound with pyrites.—*Campi Phlegræi.*

ſulphures,

ſulphures, as will be remarked in the proper place. As the ſame kind of ſubſtance, therefore, is found diffuſed in ſeveral parts of Solfatara, I think it well deſerves that we ſhould carefully conſider it, and the bodies with which it is found united.

I. The ſtones which I here undertake to deſcribe are principally found in the interior ſides of Solfatara. The firſt I ſhall mention exhibits, both externally and internally, a number of ſhining particles, which, when examined by the lens, appear to be ſmall aggregates of ſulphure of iron, ſome cryſtallized in cubes, others in globes, and others in irregular figures. When the flame of the blow-pipe is applied to them, they begin to loſe their yellow colour, which quickly, in conſequence of their deſtruction, entirely diſappears; when an odour ſlightly ſulphureous is emitted.

This ſubſtance is a lava, the baſe of which is horn-ſtone; in part decompoſed, light, friable, granulous, and of a cinereous colour.

II. The ſmall ſulphures of iron in this ſecond lava are leſs numerous, but in their qualities very analogous to that already deſcribed; except that they are leſs decompoſed, and leſs friable.

III. The appearances exhibited by this lava are two. The external part is extremely white, and ſo decompoſed, that the ſlighteſt blow reduces it to powder; we likewiſe find in it ſome of the external characters of ordinary clay. It tenaciouſly adheres to the inſide of the lip; is ſoft to the touch, and becomes ſtill more ſo when ſlightly moiſtened. It abſorbs water greedily, and with a kind of hiſſing noiſe; but is not reducible to a lubricious paſte, as clay is. But the internal part of this lava, beſides being of a grey colour, is three-fourths heavier, and in its compactneſs and its grain, approaches to that ſpecies of calcareous earth, called *calcareus æquabilis*, though in fact it only reſembles it in appearance, not being reduced to calx by fire, nor diſſolved by acids. In this lava the ſulphure of iron is not found in cubes, or globes, but in thin lamellæ; and is diſperſed throughout its whole ſubſtance, eſpecially in certain parts, where the colour of the ſtone inclines to black, and has a greater conſiſtency. No ſign of this mineral appears in the white decompounded lava, probably becauſe it was deſtroyed gradually, in proportion as the decompoſition took place.

IV. This lava is much heavier than the three preceding; which, no doubt, ariſes from the greater abundance of ſulphure of iron that it contains. The ſhining particles of this mineral are principally to be ſeen in the vacuities, (of which, however, it has not many.) They are polyhedrous, but the number of their faces is not conſtant. When expoſed to the fire it loſes its braſſy colour, burns with a thin blue flame, and emits a ſtrong ſmell of ſulphur. The lava which contains it, and which is of a livid grey colour, is, in ſome ſituations, ſo ſoft that it may be ſcratched with the nail, but in others much harder, and ſome of it will give ſparks with ſteel. In this lava, the baſe of which appeared to me to be horn-ſtone, we find cryſtallized feltſpars, but decompoſed, though leſs ſo than the lava in which they are incloſed.

V. Around the extenſive plain of Solfatara, we obſerve in ſeveral places a circular ridge of ſteep rocks, which once formed the upper ſides of this enormous crater. The rain-water, deſcending this declivity, over the decompoſed lava, carries down with it the more minute parts to the lower grounds, where various concretions are produced, eſpecially thoſe ſtalactites which are commonly called *oolithes*, or *piſolithes*. But of theſe ſtalactites we ſhall ſpeak hereafter. Here we ſhall only notice, that this water in its deſcent carries down with it ſmall pieces of decompoſed lava, and that in ſome places many of theſe pieces are found united, and bound together by a cruſt of ſulphure of iron. It is black where it is expoſed to the immediate action of the air, but in the fractures of a ſhining appearance, though the colour inclines more to a lead colour than to

yellow. Its ſtructure is ſcaly. The ſulphures of iron which have before been mentioned give fire with ſteel; but this does not, from want of ſufficient hardneſs. It abounds with ſulphur; ſince, being expoſed to the flame of the blow-pipe, it viſibly melts, and, the activity of the fire being increaſed, a blue flame ariſes, which continues till the cruſt is conſumed, nothing remaining but a very ſmall quantity of a white pulverous earth, which is no other than a portion of decompoſed lava, that had been united with this ſulphur.

With this ſulphur, the preſence of which is extremely manifeſt from its ſtrong ſmell, is alſo united arſenic; as ſufficiently appears from the white fumes which ariſe from the combuſtion of the ſulphure of iron, and which emit a very ſenſible odour of garlic.

Theſe are the volcanic matters which, at Solfatara, abound more or leſs with ſulphures of iron. But whence is their origin? It is well known they are formed by the combination of ſulphur with iron. With the former this volcano abounds, whence it obtained the name of Solfatara; and as the latter is almoſt always found mixed with volcanic productions, which commonly derive from it their varying colours, we have thus the two proximate principles of ſulphure of iron. But is their combination effected by the dry, or, as is more probable, by the humid way? I find it difficult to conceive how it can take place by the firſt method, on account of the ſpeedy diſſipation of the ſulphur ſublimed by fire, which muſt prevent its uniting with the iron to form theſe ſulphures. It appears to me more probable that they have been formed by the action of water, which having penetrated the lava, the ſulphur, diſſolving in the fluid, has combined with the iron. But as ſuch ſolutions of ſulphur in water ſeldom take place, as Bergman has obſerved, we rarely find ſulphures of iron in volcanized countries, notwithſtanding the exiſtence of theſe two minerals.

But let us continue the deſcription of the productions of this celebrated place, the greater part of which are decompoſed lavas; though this decompoſition, notwithſtanding it has been noticed by ſeveral writers, has not, to my knowledge, been examined by any one with requiſite care and attention.

VI. This lava is coloured on the upper part with a covering of yellow oxyde of iron, under which is a white decompoſed ſtratum, to which correſponds another lower one of a cinereous colour, where the lava is much leſs changed. Theſe two ſtrata form a very ſtrong contraſt. The white may be cut with a knife, in ſome places more eaſily and in ſome leſs; adheres to the tongue, does not give ſparks with ſteel, feels ſoft to the wet finger paſſed over it, has conſiderable lightneſs, and being ſtruck with a hammer gives a dull ſound, like earth moderately hardened. On the contrary, the cinereous ſtratum ſounds, when ſtruck with a hammer, like a hard ſtone, of which it alſo has the weight; is rough to the touch, ſcarcely at all adheres to the tongue, gives fire with ſteel, and cannot be cut with the knife. The white ſtratum in ſome places is an inch thick, and in others more, but there are likewiſe places where it is only a few lines in thickneſs. The white ſtratum in general changes inſenſibly into the cinereous, but in ſome places the ſeparation is ſudden and abrupt.

The feltſpars in this lava (for of theſe it is full) are priſms, the largeſt of which are ten lines in length, and the ſmalleſt the ſixth of a line. In the cinereous ſtratum, notwithſtanding a beginning decompoſition may be perceived, the feltſpars are unimpaired. On the contrary, in the more decompoſed ſtratum, I mean the white, their decompoſition is very apparent; they have all loſt their tranſparency, though many of them ſtill retain their ſplendour. Others have acquired a reſemblance to a ſulphate of lime that has remained ſome time in the fire; to which they might likewiſe be compared in ſoftneſs, had they a little leſs conſiſtence. Some of them are inſixed in that part of the

lava, the colour of which is between the cinereous and white, and here we find them leſs changed than in the ſtratum which is entirely white. Others have one part of them in the white, and the other in the cinereous ſtratum; in which caſe we find the part fixed in the latter ſtratum to have ſuffered nothing, but that in the former conſiderably. In ſhort, from the inſpection of this lava it is manifeſt, that, in proportion as the nature of it is changed, the feltſpars it contains undergo a change, except when the principle producing the alteration is unable to affect them. Beſides theſe feltſpars, we find, incorporated with the lava, a number of very ſmall and almoſt inviſible black ſhoerls, which are not diſtinguiſhable where the lava is white; leſs, perhaps, becauſe they do not exiſt, than becauſe they have loſt their colour in conſequence of the decompoſition.

This lava, which is of a margaceous baſe, does not liquify in the furnace, when its decompoſition is conſiderable, but other parts of it, which have been leſs decompoſed, are reduced to a kind of frit.

VII. Solfatara, perhaps, does not afford a lava more compact, hard, heavy, or of finer grain than this. Its compoſition is ſiliceous, its colour grey, it gives ſparks ſtrongly with ſteel, and, at the diſtance of two lines, attracts the magnetic needle. Its baſe is of the petroſilex, and it contains within it different feltſpars and ſhoerls; but ſome of the latter have been melted by the fire, as appears from the bubbles or ſpeckles occaſioned by the liquefaction. This lava is covered with a very white cruſt, nearly an inch thick, produced by the decompoſition it has undergone. The effects of the furnace on this lava are nearly the ſame with thoſe on the lava No. VI.

VIII. This lava is entirely decompoſed. On the ſurface, and for ſome depth, it is white, and almoſt pulverous; but in the internal part the white colour changes into a reddiſh blue, and acquires a degree of hardneſs, though not too great to be cut with a knife. The feltſpars, in which it abounds, have ſuffered different degrees of decompoſition. Some of them, beſides being calcined, attach ſtrongly to the tongue. Others, when viewed with a common lens, appear full of filaments, but when examined with a deeper magnifier, theſe filaments appear to be no other than extremely thin, ſtriated, and very friable laminæ. This production is infuſible in the furnace.

IX. The feltſpars in this lava occupy more than one third of its maſs. They are in ſhape flat priſms, and, except having ſomewhat leſs hardneſs, retain all the qualities which characterize the ſpecies of ſtone to which they belong. There are alſo a number of ſhoerls, which, from their extreme minuteneſs, appear like points, but are eaſily diſtinguiſhable, by their black colour from the lava, which is whitiſh, and has greater conſiſtence than that of No. VIII. It is likewiſe heavier; to which the quantity of feltſpars but little changed, which it contains, undoubtedly contributes.

X. The ſhoerls which make ſo great a part of the other kinds of lava, are found ſo ſtrongly adherent to them, that we uſually can only ſeparate them in fragments. The preſent lava, in this reſpect, offers an exception which may be conſidered as recommendatory of it. It has acquired ſo great a degree of ſoftneſs by its decompoſition, that the numerous ſhoerls it contains may be detached from it entire. They are hexagonal priſms, truncated perpendicular to their axes, the faces of which are ſlightly ſtriated lengthwiſe, and their colour is a yellowiſh black.

In this lava, the baſe of which appeared to me of horn-ſtone, another more remarkable peculiarity preſents itſelf. On breaking it, the fractures diſcover a number of ſmall caverns, jewelled, if I may employ the term, with a multitude of extremely minute ſhoerls, of different colours, ſome green, ſome yellow, others of a dark cheſnut, but all ſimilar, being hexagonal priſms, with rhomboidal faces, and each terminating in a dihedrous pyramid. Their angles are regular, their faces ſhining, and in part tranſ-

parent. They ſometimes form geodes in the body of the lava. To examine them a lens is neceſſary, and a good magnifier, clearly to perceive other ſhoerls ſtill more minute. Theſe are infixed in the ſmall cavities I before mentioned, and, though they are extended to a conſiderable length in front of the others before deſcribed, are ſo minute and numerous, that a ſingle cavity will contain a hundred of them. Every one of both theſe kinds of ſhoerls has one extremity fixed in the lava, and the other in the air, and all together appear like a wood in miniature. I was, at firſt, in doubt whether I ſhould conſider them as ſhoerls or volcanic glaſs, as more than one inſtance has been known of ſuch glaſs reduced to a capillary minuteneſs within lava. But the latter appeared to me improbable, becauſe, after all the obſervations that have hitherto been made, we are not yet certain that any volcanic glaſs has been found cryſtallized; for, with reſpect to the pretended cryſtallization of ſome glaſſes in Iceland, we have not facts which demonſtrate it incontrovertibly. On the other hand, the minute corpuſcles I have deſcribed, if not all, at leaſt thoſe which from their larger ſize are more diſcernible by the eye, have a priſmatic figure, and analogy muſt induce us to conclude the ſame of the reſt.

I incline to believe theſe infiniteſimal cryſtallizations produced, after the cooling of the lava, within the cavity in which they are found, from extremely ſubtle ſhoerlaceous ſediments, by the filtration of water. But we ſhall have occaſion to ſpeak of ſimilar adventitious cryſtallizations within the ſubſtance of lava, in another part of this work.

XI. The *Oolites*, mentioned in No. V. lie in certain ſmall channels of Solfatara, through which the water runs when it rains. They are either round, or ſomewhat flattened; rather more than half an inch in diameter, white as ſnow, extremely light, eaſily crumbled, and convertible into an almoſt impalpable powder. They adhere ſtrongly to the tongue, and are compoſed of a number of thin ſcales. The formation, therefore, of this volcanic ſtalactites does not differ from that of the other ſpecies.

It would be ſuperfluous to ſpeak here of the ſulphate of lime, adhering to ſome kinds of lava, or of the ſulphate of iron, and the oxyde of red ſulphurate arſenic, as theſe productions of Solfatara have already been ſufficiently examined and deſcribed by others, and I have no particular obſervations concerning them which merit to be mentioned.

XII. It is not uncommon to find at Solfatara pumices of various ſpecies; and it is more probable that they have been thrown out of this volcano than from any of the others. We do not find them in great maſſes, as in other places, but in detached pieces and fragments. I ſhall only remark one particular relative to them, as it appears to me that in every other reſpect they perfectly reſemble thoſe already known. We now know that pumice is only a glaſs which wants but little of being perfect; and ſeems to require only a degree more of heat to become ſuch. The tranſition from glaſs leſs perfect to perfect, may be perceived in ſome of theſe pumices in a very evident manner. In ſome places their texture is fibrous, and the fibres are vitreous; but without that degree of tranſparency, which are inſeparable from volcanic glaſſes. But following them with the eye, we perceive them conſolidate, here and there, into maſſes of various ſizes, which reſemble a ſhining and ſmooth varniſh, but are in fact perfect glaſs, as will ſufficiently appear, if they be detached from the pumice, and examined ſeparately. Theſe are ſufficiently hard to give ſparks with ſteel, a property obſervable in every volcanic glaſs.

Having now deſcribed the principal productions of the interior part of Solfatara, I ſhall proceed to make a few obſervations on ſome which are found in its exterior; in that part which is next to the Piſciarelli, ſo called from the warm bubbling water, which iſſues, with ſome noiſe, from the bottom of a little hill contiguous to this volcano, and which has been long celebrated for its medicinal virtues. I collected here ſpeci-

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mens of five kinds of lava; but, as in their general qualities they are analogous to thoſe already deſcribed, I ſhall only mention them in a curſory manner.

XIII. The firſt ſpecimen is a ſimple or homogeneous lava, in which, notwithſtanding the moſt careful examination, I could not diſcover either ſhoerls, feltſpars, or any extraneous body. In other reſpects, like thoſe before mentioned, it is decompoſed, adheres to the tongue, is friable, but without crumbling under the finger; its whiteneſs extends through its whole maſs, and wherever it is broken has the taſte of ſulphate of alumine (or alum).

XIV. The ſecond ſpecimen, through nearly the half of it, exhibits a ſimilar decompoſition, and is of a white colour; but the other half, which is of a lead colour, has ſuffered little, gives ſparks ſtrongly with ſteel, and moves the magnetic needle at two lines diſtance. This lava has for its baſe the petroſilex. Both that part of it which is ſlightly decompoſed, and the other which is more ſo, contain rhomboidal feltſpars, of which the largeſt are about an inch in length. Their alteration is ſcarcely viſible where the lava is leaſt changed; and where it is more they exfoliate with ſome facility, but retain a conſiderable degree of their natural hardneſs and ſplendor.

XV. The third ſpecimen is a lava of a dark grey colour, ſiliceous where fractured, very compact, and which gives ſparks with ſteel. It is of a petroſiliceous baſe, and contains abundance of feltſpars and ſhoerls. But to ſhew theſe, it is neceſſary to diveſt it of a thick, whitiſh, and half-pulverous cruſt, produced by its decompoſition. In this cruſt the ſhoerls and feltſpars retain ſome conſiſtence, but have loſt, in a great degree, their luſtre.

XVI. The fourth ſpecimen contains within it a nucleus of a deep red colour, of the hardneſs and appearance of the carbonates of lime (calcareous earth), of a fine grain, but which is not diſſolved or affected by acids, nor yields ſparks with ſteel. It attracts the magnetic needle at the diſtance of one line. It contains a number of fiſſures, through which has penetrated, together with water, a quartzous matter, which has conſolidated into a ſemi-tranſparent, and ſomewhat rough covering. In this lava, which is but little decompoſed, are found, diſperſed, a number of ſmall maſſes of ſulphure of iron.

XVII. Small ſhoerls, and large cryſtallized feltſpars, occupy the ſubſtance of this laſt lava, which is ſomewhat porous, but ſufficiently hard to give ſparks with ſteel. It is covered with a whitiſh yellow cruſt, which flakes off with a knife, and a reddiſh tincture has penetrated to its internal part, which is of a blackiſh ground.

In theſe lavas of Piſciarelli, the decompoſition has, likewiſe, been much more conſiderable, than in the feltſpars and ſhoerls which they contain within them.

I do not pretend to be certain that I have enumerated all the ſpecies of lava to be found at Solfatara: it is poſſible there may be others unobſerved by me. I am perſuaded, however, that I have deſcribed the principal; and ſuch as enable me to deduce from their qualities the following concluſions.

I. Almoſt all the ſpecies of lava, hitherto deſcribed, are more or leſs decompoſed, and this decompoſition is uſually accompanied with a proportionable degree of whiteneſs.

This obſervation has been made by ſeveral authors; and firſt by Sir William Hamilton, and M. Ferber, who have endeavoured to account for the fact by a very plauſible reaſon, which is, that the ſulphureous acid vapours which iſſue from Solfatara, and muſt have been produced in an infinitely greater quantity when the conflagration was at its height, penetrating the lava by degrees, have inſenſibly ſoftened it, and given it a white colour. And, in fact, ſimilar changes are obſerved to take place in a piece of black lava, expoſed for a ſufficient time to the fumes of burning ſulphur. But it does not

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hence follow that this lava will be changed into an argillaceous ſubſtance, as the above mentioned Swediſh philoſopher would have us believe; ſince, from a chymical analysis, it appears that an earth of that kind, combined with other principles, pre-exiſted in it, and has only been rendered manifeſt by the diminution of aggregation produced by the before-mentioned vapours.

It is likewiſe not ſtrictly true that the walls, or incloſing ſides, of Solfatara are every where white and decompoſed, as we might infer from the deſcription of M. Ferber. Thoſe which look toward the ſouth, indeed are ſo, but not thoſe which are ſituated in another direction, and eſpecially thoſe which front the north, which are of a blackiſh colour, and little, or not at all, decompoſed. The Abbé Breiſlak, Director of Solfatara, who accompanied me when I made my obſervations, ſuggeſted a very probable reaſon for this diverſity of appearance in the different ſides, obſerving that the ſuphureous acid is leſs powerful to effect the decompoſition of lava, and requires longer time, when the lava has conſiderable humidity; which humidity muſt be much leſs on the ſouthern ſide, where the heat of the ſun is greateſt. In fact, he expoſed a piece of ſolid lava, to a very humid ſuphureous exhalation, at Solfatara, during two months, without producing in it the leaſt decompoſition.

II. The obſervations I have made convince me that the alterations here deſcribed always take place in the upper part of the lava; and that, in proportion as we penetrate downwards into it, they become gradually leſs, and, at a certain depth, entirely ceaſe. This, at firſt view, does not appear to accord with the effect of ſulphureous vapours, which, riſing from the bottom of Solfatara, and paſſing through the lava, might be expected to cauſe a greater change in the lower parts than the higher, from their having there greater heat, and conſequently being more active. But we muſt conſider that this may indeed be the nature of their action, where the lava is ſpongy, or at leaſt very porous, but not where it is compact, and almoſt impenetrable to ſuch vapours, as is that of Solfatara. And, in fact, we find that the ſulphureous fumes which ariſe there do not iſſue from the body of the lava, but always from fiſſures or apertures in it, or the ſubjacent tufa. Theſe impediments, therefore, prevent them from acting except on the ſurface, when iſſuing forth they are driven over it by the wind, and penetrating the lava, in a long courſe of time, produce the changes in queſtion. We meet with few decompoſed lavas, within which we do not find fragments of ſulphur adherent, condenſed there by the acids above mentioned, and which are of the ſame kind with that produced in ſuch abundance in Solfatara.

But what productive cauſe ſhall we aſſign for thoſe ſulphureous vapours, the ſlow deſtroyers of the lava, which continually iſſue from a number of fiſſures in Solfatara, in the form of hot white fumes? I can conceive no principle to which they can with greater probability be aſcribed than thoſe ſulphurs of iron, (pyrites,) which abound at the bottom of the volcano, and decompoſing, in conſequence of a mixture with the ſubterraneous waters, ſlowly inflame, and produce thoſe hot ſulphureous vapours, which evidently prove that the ſubterraneous conflagration is not entirely extinguiſhed. The noiſy effervescence, likewiſe, which in more than one place is heard under the plain of Solfatara, ſeems to give a certain indication of the decompoſition of theſe ſulphurs.

The ſtreams of vapour which ariſe from Solfatara, according to Father * Della Torre, in the night appear like flame. No perſon can be more competent to aſcertain the truth of this fact than the Abbé Breiſlak, who reſides near the place, and who, when I queſtioned him on the ſubject, aſſured me that he had never obſerved any ſuch appearance.

* Storia del Veſuvio.

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It is, however, not impoſſible but that, at the time he obſerved them, they might have undergone ſome change.

The vapours which ariſe from the ground of the Piſciarelli are very few, and almoſt inſenſible, though formerly they muſt have been numerous and ſtrong, as may be inferred from the great decompoſition and whiteneſs of the lavas found there. I have already mentioned the noiſe with which the ſprings that bear this name burſt from the earth. They reſemble a boiling caldron. The reaſons aſſigned for this phenomenon, by different authors, are various, but, hitherto, all conjectural. On applying the ear to the place where the ſpring iſſues, we may perceive that the bubbling noiſe does not proceed from any great depth, but from a ſmall diſtance from the ſurface of the earth. Were the ground here to be dug into, we might, perhaps, be able to diſcover this ſecret, the knowledge of which might prove advantageous to volcanic reſearches. My want of time, and other cauſes, did not permit me to make the experiment myſelf when I was at Naples; but I entertain a hope that what I have ſaid may induce ſome of the lovers of natural knowledge in that city to engage in that undertaking, which I incline to think will not be found uſeleſs.

III. We have ſeen that almoſt all the lavas of Solfatara contain within them ſhoerls and feltſpars. But it has been proved that the changes occaſioned in both the latter, by the action of ſulphureous acids, are conſiderably leſs than thoſe which take place in the lavas their matrices; which difference muſt ariſe from the nature of theſe two ſtones, which is leſs liable to extrinſic injuries. We find them, in fact, firmly reſiſt the power of the humid elements. To the ſouth of Veſuvius, and at a little diſtance from Salvatore, I have found ſeveral pieces of very ancient lava, porous, and half-conſumed by time, which, however, preſerved unaltered their black cryſtallized ſhoerls.

It has been obſerved that the houſes of Pompeii, long ſince overwhelmed by Veſuvius, and *now* in part dug into and cleared, are found to have been built of lava. I have aſcertained *this fact* on the ſpot. They are of a reddiſh colour, very dry to the touch, and ſome of them will crumble under the finger, evident proofs of the change they have undergone; but no ſuch alteration has taken place in the ſhoerls they contain; they ſtill retain the hardneſs and glaſſy ſplendour which is appropriate to that ſtone.

We likewiſe know that the feltſpars are indeſtructible by the air, as appears in the porphyries of which they are a part.

IV. I have already remarked that the lavas of Solfatara uſually have for their baſis the petroſilex and the horn-ſtone. I ſhall add that I have alſo met with the granite in them, though not in a large maſs, but in ſmall detached pieces, which induced me to doubt whether they properly belong to this volcano; and as they likewiſe appeared to me untouched by the fire, I rather inclined to believe them adventitious. This granite conſiſts of two ſubſtances, quartz and ſhoerl.

But another production muſt not be forgotten, which forms large heaps on one ſide of the internal crater of this volcano. This is an aſh-coloured tufa, of a middling conſiſtence, in ſtrata of various thickneſs, with the ſuperficies of each ſtratum covered with a black cruſt, in which may be diſcovered manifeſt veſtiges of plants. The Abbé Breiſlak, who firſt obſerved this tufa, after having ſhewn it me on the ſpot, gave me ſome of theſe impreſſions of plants to examine, conjecturing them to be ſome ſpecies of the *alga marina*, or ſea-weed. While I was at Naples, I had not ſufficient time to make an accurate examination of them; but this I afterwards made at Pavia, from ſeveral ſpecimens of the ſame tufa. Some parts exhibited only the impreſſions of plants, but in others I found real leaves. They are ſtriated, with ſtriæ running lengthwiſe, and when touched with the point of a needle, eaſily break, and appear converted into a carbona-

carbonaceous ſubſtance. At firſt I doubted whether they were plants of the alga; but on examining them again, carefully, with a lens, and comparing the leaves found in the tufa with thoſe of the natural alga, I was fully convinced they were.

This obſervation appeared, both to me and the Abbé Breiſlak, to be of conſiderable importance; ſince we may conclude from it, that part of Solfatara which is formed by this tufa, has once made a part of the bottom of the ſea, and been thrown up by the action of ſubmarine fires. Nor is it improbable that the reſt of it has had the ſame origin, and that all the ſubſtances of this volcano have iſſued from the waters of the ſea. Such we know to have been the origin of many other mountains, either now actually burning, or which have ceaſed to burn.

It is well known that for a long time alum and ſal-ammoniac have been extracted from this half extinguiſhed volcano. The method employed for each was as follows. In the proceſs for the alum, certain ſquare places were cleared out in the plain of Solfatara, in which it effloreſced, and the efflorescences were ſwept together, and from them, by methods well known, the ſalt was collected purified. The ſal-ammoniac was obtained by placing a number of pieces of tile round the apertures from which that ſalt iſſued, in the form of a ſubtle vapour, upon which the vapour was condenſed. A deſcription of theſe two methods is to be found in almoſt all the authors who have written on Solfatara; ſome of whom, with reaſon, cenſure them as imperfect, and conſequently not likely to produce the profit which might be obtained.

But we may now hope that both theſe manufactures may become objects of importance under the direction of the Abbé Breiſlak, and the liberal patronage of Baron Don Giuſeppe Brentano, who has taken this celebrated Phlegrean field at a conſtant rent. The Abbé, proceeding on the principle that the quantity of alum procured from Solfatara muſt be proportionate to the area of the ſpace on which it effloreſces, inſtead of the narrow ſquares formerly appropriated to this purpoſe, and called *gardens*, has greatly extended the ſpaces allotted; and that the preparation of this ſalt may not be prevented by the rain-water draining into the bottom from the ſteep ſides of the volcano, he has ſurrounded them with ſmall ditches, with deep wells at intervals which receive the water, and where it is ſoon abſorbed by the ſpongy earth. In the lower part of theſe ſides he has likewiſe opened a number of cavities equally proper to furniſh alum.

The ſame principle appears to have guided the Abbé in his attempts to increaſe the quantity produced of ſal-ammoniac, by making uſe of long and capacious tubes of earth, open at both extremities, and baked in the furnace. Theſe receive at their lower ends the vapours abounding with this ſalt, which attaches itſelf to their inner ſides, and forms there a cruſt that in time increaſes to a conſiderable thickneſs. I have ſeen with pleaſure at Naples the effects of theſe two methods; and it is expected they will be ſtill more productive, when ſome alterations ſuggeſted by perſons well acquainted with this buſineſs have been made.

Formerly ſulphur was extracted from the crater of this volcano; but the ſmall quantity of it, and the low price of the commodity, have cauſed this labour to be abandoned.

Deſcending from Solfatara, a little above the level of the ſea, and near to Pozzuolo, we meet with the ruins of a temple, ſuppoſed to have been dedicated to Serapis, and in modern times freed from a ſlimy eruption under which it was buried. This edifice may at once gratify the admirer of the imitative arts by its architecture, and the curioſity of the naturaliſt. Among the parts which ſtill remain entire, are three beautiful columns of that ſpecies of white Grecian marble, uſually called *cipollino*. They are erect, but at the height of about nine feet from the ground, each column begins to appear worn;

and this wearing extending round the column, forms a horizontal band or fillet, which is rough and unequal, about two feet in breadth, while the remainder of the column is ſmooth and poliſhed. This band is in every part bored by the marine animalcule called *Mytilus lithophagus* by Linnæus, and in ſome of the perforations the ſhells are ſtill to be found, either entire or in fragments.

But beſides this ſpecies, which is well known to Conchiologiſts, I have diſcovered another, which I had before found, in a living ſtate, in ſome ſubaqueous marbles in the lake of Venice, an accurate deſcription of which I ſhall reſerve for another work. Several of the ſhells of this mytilus, which is ſmaller than the other, are to be found in the perforations of this part of the column. In fact, on examining with attention beſides the holes made by the two ſpecies of mytili already mentioned, I found many others, extremely ſmall ones, which all who are acquainted with the different ſpecies of marine animalcula, will know to be the work of other lithophagous worms. I muſt likewiſe add that I have found among them ſome ſerpules, and particularly the *contortuplicata*, and the *triquetra* of Linnæus. Theſe are the marine animalcula which have eaten into the three columns near the middle of the ſhaft, producing that circle of inequalities and roughneſs, except which there is no veſtige of theſe animals.

On the plain of the Temple are found ſeveral other fragments of columns; ſome of the ſame *cipollino* marble with the former, and others of African marble; which fragments have likewiſe bands or fillets of inequalities and roughneſs ſimilar to thoſe before deſcribed, above and below which the marble is perfectly ſmooth, and ſtill retains the poliſh it originally received from the hand of the artiſt.

On the ſame plain we ſee ſcattered ſeveral columns of granite which appeared to me to be oriental; the component parts of which are black mica with large flakes, which is very abundant, a large proportion of feltſpar and quartz. But theſe columns have not been touched by the corroding worms; nor was it to be expected that they ſhould, as it appears, from a variety of inſtances, that they only attack calcareous ſtone.

M. Ferber, in his letters before cited, mentions this appearance in the columns; but he only notices the *mytilus lithophagus*, which he calls the *pholas* or *dactylus*. But the cavities in which theſe pholades have lodged being nine feet high above the preſent level of the ſea, he infers that the ſea has ſunk nine feet, ſupporting this inference by the obſervation "that the pholades always reſide in rocks level with the ſurface of the water, and never are found near the bottom."

But this is an aſſumption contrary to fact, as I ſhall eaſily prove. The pholades in theſe columns, which, according to Linnæus and other ſyſtematic naturaliſts, belong to the genus of the mytili, I have very frequently found in the Gulf of Spezia at Genoa, and in its environs, within the port itſelf of that city, in ſeveral places in the ſea of Iſtria, and other parts of the Adriatic, and likewiſe in the Mediterranean. But in all theſe places I have found them in ſub-aqueous rocks, never or ſcarcely ever level with the ſurface of the water; and frequently I have procured them to be fiſhed up from the bottom of the ſea at the depth of ten or twelve feet, by the means of long and ſtout forceps, which drew up large pieces of the rock in which they were contained in a living ſtate. I have alſo in my poſſeſſion ſeveral of theſe pholades, or more properly ſpeaking mytili, infixed within the hard ſhells of very large oyſters fiſhed up in my preſence from the depth of one hundred and forty two feet. But in theſe columns we find not only the remains of mytili, but of ſerpules and of other very ſmall lithophagous worms which are found in the ſea at every depth. As therefore the ſuppoſition of Ferber, that the pholades or mytili always reſide at the ſurface of the water only is contrary to fact, his deduction that the level of the ſea has ſunk nine feet ſince the time of the coroding of

theſe columns, muſt likewiſe evidently be erroneous. All that we can with certainty affirm is, that the circle or fillet which has been the habitation of theſe marine worms, has been covered by the ſea for a long ſeries of years; as may be inferred from the remains of theſe animals found in the cells they have ſunk, which ſhew that they had attained their perfect ſize, to complete which they require nearly half a century, as I could prove by inconteſtible facts, did I not fear it would lead me too far from my ſubject.

It may perhaps be objected, that it muſt appear extraordinary that theſe columns which are now in an erect poſition, ſhould have been ſo long waſhed by the ſea-water in that circle only, while the part of the ſhaft below it remained untouched. Yet might they not, before they were employed in the fabric of which they made a part, have been buried in the ſea in ſuch a manner that this circle alone, which is now rich with marine ſpoils, might be acceſſible to the water *? But though this hypotheſis ſhould not appear ſatisfactory, and I have no other to offer, I ſhall content myſelf with ſtating the facts of which I have knowledge, without feeling any great ſolicitude that I am not able to explain them.

CHAP. III.—THE GROTTA DEL CANE.

Errors of Ferber relative to this celebrated grotto.—Experiments of the Author and Abbé Breiſlak, relative to the mortiferous vapour.—Deſcription of the grotto.—Conjecture that the vapour was anciently more extenſive.—Its mean height.—Its heat greater than that of the atmoſphere.—Conſiſts of carbonic-acid gas, mixed with atmoſpheric air and azotic gas.—This carbonic acid, according to the Abbé Breiſlak, is the produce of the carbure of iron contained in volcanic ſubſtances, and combined with oxygene.—The mephitic vapour exhibits no ſigns of magnetiſm or electricity.—Phenomena which accompanied the burning of ſeveral ſubſtances placed within the vapour.—Remarks of the author on the experiments of the Abbé Breiſlak, and his conjectures on the origin of this carbonic acid.

HAVING viſited Solfatara and the ſurrounding rocks, continuing my journey to the weſt, I ſoon arrived at the *Grotta del Cane*. There is no perſon converſant with literature who does not know that this name has been given to a ſmall cavern between Naples and Pozzuolo, becauſe if a dog be brought into it, and his noſe held to the ground, he ſoon begins to breathe with difficulty, and loſes all ſenſe, and even life if he be not ſpeedily removed into the open and purer air. This grotto, though ſo celebrated both in ancient and modern times, in fact ſhares its fame with ſeveral other places which are endowed with the ſame deleterious quality; as it is only one of the almoſt innumerable peſtiferous vapours in different parts of the world, eſpecially in volcanic countries, which are quickly fatal both to brute animals and man, though they do not offer to the eye the ſlighteſt indication of their preſence. They have been mentioned by a numerous liſt of writers, whom I might cite, were I diſpoſed to make an unſeaſonable parade of my reading. It is to be remarked that the greater part of theſe vapours are only temporary, whereas that of the Grotta del Cane is perpetual, and ſeems to have produced its deadly effects in the time of Pliny. A man ſtanding erect ſuffers nothing from it, as the mephitic vapour riſes only to a ſmall height from the ground: I therefore entered it without danger; but notwithſtanding the moſt attentive obſervation I could make, I could not perceive the ſmalleſt viſible exhalation.

* They may have originally belonged to an edifice in a diſtant country, overwhelmed by the ſea.

It

It therefore appeared to me that M. Ferber muſt have been miſtaken, when he ſays; "the killing damps riſe from the ground about a palm above the floor, move along it as a white ſmoke, and ſpread through the door in the open air *." But as it has already been obſerved that the ſmoke of a torch extinguiſhed in the vapour ſinks downwards, aſſumes a whitiſh colour, and goes out at the bottom of the door; it appears probable that this occaſioned his miſtake, eſpecially as he mentions the experiment of the extinguiſhed torch in the ſame place.

As little can I agree with him that the miſchievous effects of this vapour are the conſequence of the air being deprived of its elaſticity †; ſince it has been demonſtrated that they are to be attributed to the carbonic-acid gas; as was firſt proved by his learned countryman, M. Adolphus Murray. As we know likewiſe, that a candle being extinguiſhed in this gas, the fumes which proceed from it mix more readily with the gas than with the atmoſpheric air; we perceive why the ſmoke of a torch that ceaſes to burn in the Grotta dei Cane ſinks where the peſtiferous vapour is ſtrongeſt, and paſſing along the ground, goes out at the lower part of the door.

The perſon who is the keeper or guide at the grotto, and who ſhews to ſtrangers the experiment of the dog for a gratuity, when the animal is panting and half dead, takes him into the open air, and afterwards throws him into the neighbouring lake of Agnano; inſinuating that this ſhort immerſion into the water is neceſſary completely to reſtore him. M. Ferber relates this fact, and ſhews that he believed all that was told him concerning it. The truth however is, that the plunging the dog into the lake is a mere trick to render the experiment more ſpecious, and obtain money from the credulous, as the atmoſpheric air alone is ſufficient to reſtore the animal to life.

The experiments made by M. Murray, to aſcertain the nature of this mephitic vapour, have diſcovered to us what was before unknown, and we owe to him every grateful acknowledgement. They have not however explained every thing we could wiſh to learn relative to this cavern. Whoever is verſed in the knowledge of nature, and acquainted in any degree with the difficult art of making experiments, muſt be convinced what a number of theſe might be made in it, which would greatly tend to throw new light on phyſiology and phyſics. I conceived a ſtrong deſire to attempt ſeveral, and communicated my intention to the Abbé Breiſlak, who accompanied me to the Grotta del Cane. We agreed to divide them between us, that I ſhould apply myſelf to the phyſiological, or thoſe which had for their object living beings, and he beſtow his attention on the phyſical. As I was on the point of ſetting out for Sicily, I reſolved to carry this plan into execution on my return to Naples. But Mount Etna and the Lipari iſles detained me a long time; and when I returned I had ſcarcely time to viſit Veſuvius, being obliged to repair almoſt immediately to Padua, to begin my public lectures in Natural Hiſtory. My friend the Abbé, however, who reſides conſtantly near Solfatara, in conſequence of his ſuperintendance of the works there, proceeded after my departure to fulfil the taſk I had aſſigned him, and communicated to me the reſult of his experiments in a letter, which with his conſent I here publiſh, as I am convinced that it will be highly gratifying to my readers.

"RESPECTABLE FRIEND, *Naples, Nov.* 20, 1790.

"WHEN you viſited this city two years ago, to make obſervations on the Phlegrean Fields, you did me the honour to propoſe to me to aſſiſt you in making a regular ſeries

* Ferber's Travels through Italy, p. 146 of the Engliſh tranſlation.
† Ferber's Travels.

of experiments on the celebrated mephitic vapour of the Grotta del Cane. You may remember that we agreed to divide between us the objects to be examined. You propoſed to inquire in what manner the exhalation acts on the animal œconomy, ſo as firſt to ſuſpend its functions, and at laſt totally deſtroy them, unleſs the means of reſtoration are ſpeedily applied. This problem, though conſidered by many, has never been inveſtigated with that preciſion and accuracy which it deſerves, nor have experiments been ſufficiently multiplied and diverſified to eſtabliſh a general rule. From you I expected that it would have received new light, accuſtomed as you are to develop the moſt complicated arcana of nature. In the experiments to be made, you reſerved to yourſelf the phyſiological, leaving to me the phyſico-chemical. Your journey into Sicily, and your haſty return to Padua to exerciſe the duties of your profeſſorſhip, rendered it impoſſible at that time for you to execute your part of the plan. I have not dared to treat a ſubject reſerved for you, but I hope that ſome other, to me fortunate, combination of circumſtances may once more bring you back to Naples, and afford you an opportunity to proſecute theſe inquiries, together with others analogous to them. In the mean time, in ſome excurſions which I have made to the lake Agnano, I have examined with the utmoſt attention, this little grotto; and have made ſeveral experiments, by the detail of which I doubt not but you will be gratified. The ſubject it is true, has been repeatedly examined by many naturaliſts, both natives of Italy and foreigners; but their ſucceſs has not been ſufficient to preclude every new experiment.

"The mephitic vapour, as you well know, occupies the floor of a ſmall grotto near the lake Agnano, a place highly intereſting to naturaliſts from the phenomena its environs preſent, and the hills within which it is included. This grotto is ſituated on the ſouth-eaſt ſide of the lake, at a little diſtance from it. Its length is about twelve feet, and its breadth from four to five. It appears to have been originally a ſmall excavation, made for the purpoſe of obtaining puzzolana. In the ſides of the grotto, among the earthy volcanic matters are found pieces of lava of the ſame kind with thoſe we meet with ſcattered near the lake. I examined ſome of them, and found them a compact lava, of a deep grey colour, interſperſed with ſmall hexaedrous priſms of mica. They are of an earthy grain, a micaceous conſiſtence, and have a ſenſible effect on the magnet. Particles of feltſpar are rarely found in them, and we meet with no ſpecimens which contain ſhoerls. I am perſuaded that were new excavations made in the vicinity of the grotto, at a level with its floor, or a little lower, the ſame mephitic vapour would be found, and it would certainly be curious to aſcertain the limits of its extent. It would likewiſe be extremely advantageous for phyſical obſervations were the grotto ſomewhat enlarged, and its floor reduced to a level horizontal plain, by lowering it two or three feet, and ſurrounding it by a low wall, with ſteps at the entrance. In its preſent ſtate, it is extremely inconvenient for experiments, and the inclination of the ground towards the door cauſes a great part of the vapour, from the effect of its ſpecific gravity, to make its way out cloſe to the ground. When I conſider the narrow limits of this place, and the ſmall quantity of the vapour which has rendered it ſo celebrated, I have no doubt but it muſt have undergone conſiderable changes; for it does not appear probable to me that Pliny meant only the preſent confined vapour, when (lib. ii. cap. 93.) enumerating many places from which a deadly air exhaled, he mentions the territory of Pozzuolo. The internal fermentations by which it is cauſed are certainly much diminiſhed in the vicinity of the lake Agnano. The water near its banks is no longer ſeen to bubble up, from the diſengagement of a gas, as we learn that it formerly did, from accounts of no very great antiquity. I have attentively examined the borders of the lake when its waters were at the higheſt, and after heavy rains, but I never could diſcover a ſingle bubble of air. A number

number of aquatic inſects which ſport on the ſurface, may at firſt view occaſion ſome deception; but a little obſervation will detect the error. If we do not ſuppoſe thoſe authors who have deſcribed the ebullition of the water near the banks of the lake Agnano to have been deceived, we muſt at leaſt confeſs that this phenomenon has now ceaſed. The quantity of the hepatic vapours which riſe in the contiguous ſtoves, called the ſtoves of St. Germano, muſt likewiſe be greatly diminiſhed from what it anciently was: for adjoining to the preſent ſtoves, we ſtill find the remains of a ſpacious ancient fabric, with tubes of terra cotta inſerted in the walls, which by their direction ſhew for what purpoſe they were intended. It appears certain that this was a building in which, by the means of pipes properly diſpoſed, the vapours of the place were introduced into different rooms, for the uſe of patients, who were accommodated there in a much better manner than they are in the modern ſtoves of St. Germano, which wretched places nothing could induce them to endure but the hope of being reſtored to health. To theſe ruins, however, the vapours no longer extend; ſo that if this edifice ſtill remained, it could not be employed for the purpoſe for which it was intended. The veins of pyrites which have produced the more ancient conflagrations of the Phlegrean fields, between Naples and Cuma, and which in ſome places are entirely conſumed, approach their total extinction. But let us proceed to the experiments made, and frequently repeated within the grotto.

"I. The firſt had for its object to determine the height of the mephitis at the centre of the grotto, that is, at the interſection of the line of its greateſt length with that of its greateſt breadth. This height varies according to the different diſpoſitions and temperatures of the atmoſphere, the diverſity of winds, and the accidental variations that take place in the internal fermentations by which the vapour is produced; it may however be eſtimated at a mean, at eight Paris inches.

"II. The entrance into the mephitis is accompanied with a ſlight ſenſation of heat, in the feet and lower part of the legs. When, in the year 1786, I viſited the large mephitic vapours of Latera, in the duchy of Caſtro, I likewiſe obſerved that they produced the ſenſation of heat in the part of the body which was encompaſſed by the mephitic atmoſphere. Yet on taking out of the vapour ſeveral ſubſtances which had remained in it a long time, as ſtones, leaves, carcaſes of animals, &c. I found that theſe were of the ſame temperature with the atmoſpheric air; but as I had broken my thermometer on the road, and was unable to procure another in any of the places through which I paſſed, I could not aſcertain the temperature of the mephitis. I felt in my body a ſlight degree of heat, which I could not perceive in the ſubſtances I took out of the mephitic vapour; and endeavouring to compare one thing with another, I concluded that the temperature of the mephitis was the ſame with that of the atmoſpheric air, which I attempted to explain to myſelf on the principles laid down by Dr. Crawford. But a number of other experiments made in the Grotta del Cane, convinced me that this exhalation has a diſtinct degree of heat, different from that of the atmoſphere. In theſe experiments, which I repeated many times, the thermometer ſuſpended at the aperture of the grotto, three feet above the ſurface of the mephitis, ſtood at between 13 and 14 of Reaumur's ſcale (62 and 64 of Fahrenheit's); and placing the ball on the ground, ſo that it was immerſed in the mephitic vapour, the mercury aroſe to between 21 and 22 of Reaumur (80 and 82 of Fahrenheit). Nor ought it to excite ſurpriſe, that the ſubſtances taken out of the mephitis did not exhibit this diverſity of temperature, both becauſe the difference is ſmall, and on account of the quantity of humidity with which they are always loaded, and which produces on their ſurface a continual evaporation. I frequently repeated this experiment, making uſe of different thermometers, becauſe I knew that the celebrated M. Adolphus Murray, when

he made his experiments in the Grotta del Cane, had not obſerved the vapour to produce any effect on the mercury in the thermometer.

" III. I repeated, for my own ſatisfaction, the uſual experiments made by many naturaliſts, with the tincture of turnſole, lime-water, the cryſtallizations of alkalis, the abſorption of water, and the acidulous taſte communicated to it, which prove beyond all doubt the exiſtence of fixed air, or carbonic acid, in the exhalation of which we treat. But is it compoſed of fixed air alone? This I wiſhed to aſcertain. When expoſed in a eudiometer to nitrous gas, an abſorption took place, to about the $\frac{1}{10}\frac{0}{0}$ of the quantity. In a phial filled with this air, and continued with the mouth immerſed in water for fifteen days, the water ſlowly roſe until it occupied $\frac{4}{10}\frac{0}{0}$: it may therefore be concluded, that the relative quantities of the different gaſes which compoſe the mephitic air of the Grotta del Cane are as follows: $\frac{1}{10}\frac{0}{0}$ of vital air, or oxygenous gas, $\frac{4}{10}\frac{0}{0}$ of fixed air, or carbonic acid, and $\frac{5}{10}\frac{0}{0}$ of phlogiſticated air, or azotic gas; or perhaps it is a mixture of carbonic acid and atmoſpheric air, with a ſmall quantity of azotic gas, more than is contained in the atmoſpheric air.

" The vicinity of the grotto to the ſtoves of Agnano, the warm vapours of which contain a conſiderable quantity of hydrogenous ſulphurated gas, induced me to ſuſpect that ſome portion of the latter might be found mixed with the gas of the mephitis; but I was not able to diſcover in it the ſmalleſt quantity. I made uſe of the ſugar of lead, or acetite of lead, which, as you well know, is extremely ſenſible to the ſlighteſt impreſſion of hepatic gas, leaving it immerſed in the mephitis for the ſpace of half an hour.

" It is certainly a curious problem to inveſtigate the origin of this fixed air. You are acquainted with the different opinions of naturaliſts, ſome of whom conſider it as an atmoſpheric air, changed into fixed by the action of the electric matter of the lava; while others ſuppoſe it produced by a ſlow and ſucceſſive decompoſition of the calcareous earth, effected either by a ſubterraneous fire, or by an acid. But the fact is, that in the Grotta del Cane there is not a ſingle vein of lava, and that the atmoſphere of that vicinity exhibits no particular ſigns of electricity. The hypotheſis founded on the decompoſition of the calcareous earth, is likewiſe ſubject to great difficulties. Our excellent common friend, the Commendatory de Dolomieu, in his valuable notes to the diſſertations of Bergman on the products of volcanos, is of opinion that the fixed air of volcanic places is produced by the re-action of the ſulphur on the calcareous earth, with which it forms a liver of earthy ſulphur. I am rather inclined to believe that the fixed air of volcanized countries is not developed ready formed from any ſubſtance, but is the produce of the plumbago contained in the iron, with which all volcanic ſubſtances abound, combined with the baſe of vital air afforded by the internal decompoſitions of the pyrites. I am not induced to embrace this ſyſtem by its novelty. The experiments of Meſſieurs Lavoiſier, Berthollet, Mongez, Landriani, and many other excellent chemiſts, compared with local obſervations, have proved, beyond a doubt, the exiſtence of plumbago in iron. It is certain that all volcanic ſubſtances abound in iron, and the hepatic vapours which riſe in the ſtoves of St. Germano, in the vicinity of the Grotta del Cane, prove the internal decompoſition of the pyrites, which ſtill takes place here: a decompoſition which, by giving birth to the mephitic acid, furniſhes likewiſe the baſe of vital air.

" IV. Among the notices which the celebrated Bergman wiſhed to receive, relative to the Grotta del Cane, he deſired a detail of the phenomena of magnetiſm and electricity. With reſpect to the former, I have obſerved no new appearance. The magnetic needle, placed on the ground, and conſequently immerſed in the mephitis, reſted in the direction of its meridian; and, at the approach of a magnetized bar, exhibited the uſual

effects of attraction and repulsion, according as either pole was presented. With regard to the latter article, it is not possible to make electrical experiments within the mephitis; not because that kind of air is a conductor of the electric fluid, as M. Murray imagined, but because the humidity that constantly accompanies it disperses the electric matter, which not being collected in a conductor, cannot be rendered sensible. I several times attempted to fire inflammable gas, in the mephitic vapour, with electric sparks, by means of the conductor of the electrophorus; but, notwithstanding my utmost endeavours to animate the electricity, I never could obtain a single spark; as the isolator became a conductor the moment it entered into the mephitis, on account of the humidity which adhered to its surface.

"V. One of the principal objects of the researches of academies and naturalists at present is the theory of the combustion of bodies. My first experiment was directed to ascertain whether those spontaneous inflammations which result from the mixture of concentrated acids with essential oils could be obtained. I placed on the ground, in the grotto, a small vessel, in such a situation that the mephitis rose six inches above the edges of the vessel. I made use of oil of turpentine, and the vitriolic and nitrous acids, and the same inflammation followed, accompanied with a lively flame, as would have taken place in the open atmospheric air. The dense smoke which always accompanies these inflammations, attracted by the humidity of the mephitis, presented its undulations to the eye, and formed a very pleasing object. As I had put a considerable quantity of acid in the vessel, I repeatedly poured in a little of the oil, and the flame appeared in the mouth of the vessel fifteen times successively. This oxygenous principle contained in the acids, and with which the nitrous acid principally abounds, undoubtedly contributed to the production and duration of this flame, though enveloped in an atmosphere inimical to inflammation.

"In the district of Latera, which I have mentioned above, I observed that in a mephitis of hydrogenous sulphurated gas, or hepatic gas, a slow combustion of phosphorus took place, with the same resplendence as in the atmospheric air. As I had not with me a sufficient quantity of phosphorus, I could not proceed farther with this experiment, nor vary it as might have been necessary. In the mephitis of Agnano, the first experiment I made was with common phosphoric matches, of which I broke five, holding them close to the ground, and consequently immersed in the mephitis. They all produced a short and transient flame, which became extinguished the moment it was communicated to the wick of a candle. The second experiment I made was the following: I placed on the ground, in the grotto, a long table, in such a manner that one end of it was without the mephitis; while the other, and four-fifths of its whole length, were immersed in it. Along this table I laid a train of gunpowder, beginning from the end without the mephitis; and at the other, which was immersed within it, the depth of seven inches, I placed, adjoining to the gunpowder, a cylinder of phosphorus, eight lines in length. The gunpowder without the mephitis being fired, the combustion was soon communicated to the other extremity of the train, and to the phosphorus, which took fire with decrepitation, burnt rapidly, with a bright flame, slightly coloured with yellow and green, and left on the wood a black mark, as of charcoal. The combustion lasted nearly two minutes, till the whole phosphoric matter was consumed.

"I then proceeded to another experiment. I placed some gunpowder on the ground in the grotto; and having lighted a cylinder of phosphorus without the mephitis, I immerged it within it while burning, carried it the distance of ten feet, and threw it on the gunpowder, which immediately took fire. No alteration was perceptible in the flame, or manner of burning, of the lighted phosphorus, either at the moment of its entrance into the mephitis, or during its continuance in it.

"I after-

"I afterwards lighted another cylinder of phoſphorus, and conveyed it immediately into the mephitis, ſupporting it with a ſmall piece of wood; and this likewiſe burnt briſkly, until it was entirely conſumed.

"It may perhaps be ſuſpected that, in the experiments with gunpowder, the oxygenous gas contained in the nitre co-operated to the combuſtion of the phoſphorus; but it is certain that, independent of the nitre, this curious ſubſtance, though it burnt in mephitic air, preſented the ſame appearances as in the atmoſpheric air. I am aware that, among the experiments of M. Lavoiſier, there is one on the combuſtion of phoſphorus produced by means of a burning mirror, under a glaſs bell, the mouth of which was immerſed in mercury. That excellent naturaliſt obſerved that the phoſphorus began to burn, but that in a few moments the air of the receiver being no longer proper to nouriſh the combuſtion, it became extinguiſhed. Is it not probable that the extinction of the phoſphorus did not proceed from the infection of the air, but that the vapours of the phoſphoric matter remaining confined in the receiver, and condenſing around the phoſphorus, ſuffocated its flame? The mephitic gas of the Grotta del Cane is certainly unfit for the reſpiration of animals, and the inflammation of common combuſtible ſubſtances; but phoſphorus, nevertheleſs, burns in it, and emits, as uſual, luminous ſparks.

"I muſt not conclude without noticing the production of the phoſphoric acid from the ſlow combuſtion of phoſphorus in the mephitis. Perhaps this may preſent particular modifications, dependent on the carbonic acid, to which it muſt neceſſarily unite itſelf in this ſituation. But I have not yet been able to proſecute this experiment, the temperature of the place not being ſuch as is requiſite to make uſe of the apparatus ſuited to the method of M. Sage. I ſhall therefore defer the inveſtigation of this ſubject until the winter, when I purpoſe to reſume it, if I can procure free acceſs to the grotto, for ſome little time, by ſatisfying the avidity of its rapacious guardian.

I remain, with ſentiments of the utmoſt friendſhip and eſteem,
Your devoted ſervant and friend,
SCIPIO BREISLAK."

The obſervations and experiments communicated in the above letter, undoubtedly enlarge very conſiderably the ſphere of our knowledge relative to this mephitic place; and I ſincerely congratulate the author on the ſucceſs of his reſearches. But the ſame ſincerity induces me to mention an obſervation which occurred to me while reading his letter, and which I am convinced his friendſhip will permit me to make public. The method he uſed to obtain the mortiferous gas on which he made the experiments here related, was, I doubt not, the ſame with that employed to aſcertain the ſalubrity of the atmoſpheric air; that is, by taking a phial filled with water, inverting and plunging it into the mephitis, then letting the water gradually out, and carefully cloſing the phial. Had any other method been uſed, I doubt not but it would have been mentioned. But by this the mephitis could not be obtained pure, ſuch as it immediately iſſues from the floor of the grotto, but muſt be more or leſs mixed with atmoſpheric air. For the carbonic acid gas being heavier than the atmoſpheric air, it muſt conſequently form a ſtratum in the lower parts of the grotto, where it will in general remain, though there will be ſome mixture of the two fluids; eſpecially when the door is opened, and the internal ambient air put in motion. Hence the mixture of the three gaſes, the carbonic acid, the azotic, and the oxygenous, obtained by the Abbé Breiſlak. I had, however, ſuggeſted to him, that the beſt method to obtain this emanation pure would be to dig a ſmall trench in the ground of the grotto, and to fill it with water; when a number of bubbles would

would no doubt riſe from the bottom to the ſurface, which would probably only conſiſt of the carbonic acid gas ſuſpended in the body of the water. The contents of theſe bubbles might be collected by methods well known, and we ſhould thus procure the genuine mephitis, without any mixture of atmoſpheric air. For greater accuracy in the experiment, mercury might be placed under the water; as it ſeems probable that the tufaceous ſoil would not be ſufficiently denſe to retain it.

We have ſeen the opinion of this learned naturaliſt, relative to the origin of the carbonic acid in this grotto. It is evident that in this, as in many other queſtions of a ſimilar kind, we can only amuſe ourſelves with conjecture, and perhaps we may never be able to proceed farther than conjecture, relative to an operation which nature has veiled in profound obſcurity, and withdrawn from the obſervation of our ſenſes. But ſince certainty is not attainable, I muſt ingenuouſly declare, that among the different hypotheſes that have been framed to account for this abſtruſe phenomenon, I prefer that which ſuppoſes that the mephitis of the Grotta del Cane is ſeparated, by the means of fire, from carbonates of lime, (or calcareous earths,) and that, paſſing through different volcanic ſubſtances, it has penetrated to that place. It is highly probable that the volcanos of the Neapolitan territory, and alſo thoſe of the eccleſiaſtical ſtate, are ſuperincumbent on ſtrata of ſuch carbonates, continued and connected with thoſe of the Apennines. In my way from Lombardy to Naples, when I arrived in the neighbourhood of Loretto, the road began to lead between mountains, which continued to Fuligno, a diſtance of nearly ſeventy miles. Theſe mountains, almoſt all with horizontal ſtrata, are compoſed of theſe carbonates. The road from Fuligno to Spoleto and Terni preſents a chain of mountains of the ſame kind, and nearly with the ſame ſtratifications. Theſe mountains extended to within a little diſtance of Civita Caſtellana, where I found ſufficient teſtimonies of extinct volcanos, in the puzzolana and lavas, which I met with at every ſtep. Some of theſe lavas are of a baſe of ſhoerl in the maſs, and others of a horn-ſtone baſe: they all reſemble the Veſuvian with reſpect to the white garnets they contain. The volcanic bodies, and various kinds of tufa and puzzolana, continued to preſent themſelves quite to the gates of Rome. From this city, continuing my journey to Naples, by the way of Veletri, I continually met with volcanized matters; but at Terracina the mountains next the ſea again appeared to be formed of calcareous earth, as did thoſe of Seſſa. But whatever may be the character of the more elevated parts, the bottoms, through which the high road paſſes, conſiſts of tufa, which exhibits the true ſigns of volcanization not only in the pieces of lava, and the great number of pumices it contains, but from being in a great degree a mixture of ſmall fragments of lava and ſcoria.

It is to be remarked, and it is worthy of attentive conſideration, that when we leave the road, and aſcend the ſteep eminences on its ſides, we frequently find beneath the tufa calcareous ſtone, eſpecially in places where the former has been corroded by rain water. The remainder of the Apennines from Seſſa to Naples are formed of the ſame calcareous ſtone; though in lower ſituations the volcanic tufa is ſcarcely ever interrupted.

In Chap. VI. I ſhall ſpeak of a volcano which I obſerved near Caſerta, a ſmall city about ſixteen miles from Naples. I ſhall then ſhew that the volcanic matters are there every where ſurrounded by calcareous ſtone.

The Foſſa Grande, which deſcends laterally from Mount Veſuvius, and which I have mentioned in Chap. I., is bordered on the ſides by two high rocks. That which is on the left, the ſide toward Naples, owes its origin to an aggregate of lava; while that on the right is compoſed of pumice-ſtone and tufa; which not being firmly connected,

frequently fall by their own weight, especially when loosened by rains, and in their fall bring down with them various substances, of which some are calcareous spars, mixed with pieces of the common calcareous earth, which, as I have already mentioned, I met with in my journey to Naples. These substances seldom exhibit any traces of injury by the fire: their angles likewise are not blunt or ragged but sharp. It is, however, indubitable that they are pieces rent from great masses of calcareous stone, before the vehemence of the fire had time to change them. These observations I made on my return from Vesuvius to Naples.

The author of the *Campi Phlegræi*, speaking incidentally of the Fosse Grande, gives the figure of a piece of calcareous breccia found there; and observes that similar pieces are frequently found in the excavations made by the rains in the sides of Vesuvius and Monte Somma. The *Lithologia Giœniana* which treats on the productions of this volcano, mentions similar calcareous stones to have been thrown up from its mouths in former times.

The island of Capri, near Naples, it is to be observed, is likewise composed of calcareous earth.

From all these observations, it appears to admit of no doubt that the Neapolitan territory, which we see volcanized, rests on calcareous strata. This was likewise the opinion of Ferber and Sir William Hamilton.

If then we suppose the subterraneous fire to act gradually on the calcareous stone, compelling it to divest itself by degrees of its acid, while it becomes covered with earthy aggregations easily permeable to this acid, now becomes gaseous, the gas will issue above it, and form a current mingling with the atmospheric air. This probably will explain the nature of the emanation in the Grotta del Cane. The Abbé Breislak has shewn that the heat of this emanation is greater than that of the atmosphere; which affords us reason to suppose that a remainder of volcanic fire exists under the grotto. The great humidity of the vapour is likewise extremely favourable to this hypothesis, since we know that calcareous stone, by the action of fire, is not only deprived of its acid, but of the water which it contained. It may be objected that on this supposition the mephitis must diminish; but it should be considered that its extent is very confined, while the quantity of the subjacent calcareous matter is immense; and it is likewise well known what a prodigious quantity of this acid is combined with such stones.

This hypothesis will likewise explain the temporary mephites which arise only in consequence of particular eruptions, as frequently happens in the environs of Vesuvius. The deleterious exhalations will continue till the subterraneous fires have decomposed the calcareous stones; but they cease when the conflagrations are extinguished.

CHAP.

CHAP. IV.—LAKES OF AGNANO AND AVERNO.—MONTE NUOVO.—PROMONTORY AND CAVERN OF MISENO.—ROCK OF BURNT STONES.—PROCIDA.

The lake of Agnano once a ſpacious volcanic crater.—Tenches and frogs found in this lake.—The abſurd report that monſtrous animals are produced there, detected by Valliſneri.—The lake of Averno preſents the mouth of another ancient volcano.—It is falſe that birds cannot approach this lake.—No deleterious exhalation emitted by it.—Volcanic ſubſtances of Monte Nuovo.—Lavas found there of the nature of pumice and enamel.—Soda grows in a little cavern of its crater.—Peculiarity of amphibious animals obſerved here.—The cavern of Miſeno abounds in ſulphate of alumine (alum) and pumice.—Well of water full of gaſeous bubbles.—Volcanic crater ſtill diſcernible on the promontory of Miſeno.—Pumices found there, containing feltſpars.—Lava, pumices, and enamels of the ſame nature, found on the Rock of Burnt Stones, and at Procida.—Great friability of this enamel, not common to volcanic enamels, and its probable cauſe.

THOUGH the Phlegræan fields are numerous, I in this work propoſe to deſcribe, or at leaſt to give a ſketch of them all; ſince, though they are all volcanic, the objects they preſent are few, and little different from each other.

I believe no one doubts that the cavity filled with water, and uſually denominated the lake of Agnano, has been the mouth of a volcano. It certainly has internally the reſemblance of one, ſince it is ſhaped like an inverted funnel, the uſual figure of volcanic craters. It muſt have been a very large one, ſince it is nearly two miles in circuit. Numerous flocks of ducks ſwim on its ſurface, and its waters contain great quantities of tenches and frogs, which were once celebrated for a pretended monſtrous formation, until the cauſe of this abſurd error was detected by Valliſneri. It may not perhaps be uninſtructive ſhould I, by way of an amuſing digreſſion, relate the ſtory of this pleaſant miſtake to the reader.

It is well known that frogs, before they arrive at the perfect form of their ſpecies, have that of a kind of worms, uſually called tadpoles, the bodies of which are of an orbicular ſhape, and have tails. We know likewiſe that theſe tadpoles become frogs by degrees, the hinder legs being firſt produced, and afterwards the fore legs, while they retain the tail for a conſiderable time. This gives them a ſtrange appearance, as the tail appears like the lower half of a fiſh, while the round body and legs reſemble the frog. Hence perſons unacquainted with the productions of nature have ſuppoſed them to be monſtrous animals, half fiſh and half frogs. A credulous Neapolitan brought one of theſe monſters, which he ſaid was a native of the lake Agnano, to Valliſneri, at Milan, that he might view it and admire. It did not, however, require the knowledge of ſo great a naturaliſt immediately to perceive the abſurd error. The tadpole, which to him was an object of laughter, not of admiration, was of an extraordinary ſize, whence he concluded that the frogs of the lake Agnano were extremely large. They are not, however, larger than the common ſize, nor did I find the tadpoles bigger, though, as it was the end of July, they had arrived at their full growth, and many, having caſt their tails, had become perfect frogs. That which was ſhewn to Valliſneri was poſſibly brought from ſome other country, perhaps America, where the frogs grow to an extremely large ſize.

The ſides and bottom of this lake are of tufa, interſperſed in ſome places with fragments of lava and pumice-ſtone; though we do not find, at leaſt ſo far as the eye can reach, any veins or ſtrata of lava: whence I infer the eruption to have been entirely, or in a great degree, thick and ſlimy.

The ſame ideas which naturally occur to the obſerver at ſight of the lake Agnano, will be ſuggeſted likewiſe by that of Averno, as there can be no doubt but this likewiſe was the crater of an ancient volcano. The Greeks called it *Aornus;* becauſe no birds were found near it, probably on account of ſome peſtilential vapour which then exhaled, and deprived them of life. The author of the *Campi Phlegræi* aſſerts that it is very rarely that any water-fowl are to be ſeen on this lake, and that when they come they remain there but a very ſhort time. The truth however is, that whenever I was there, I ſaw great numbers of teal ſwimming on the ſurface, and the peaſants aſſured me that the lake abounded with water-fowl in the winter. Nor do I know any cauſe which can, at preſent, drive them from a place where they may find plenty of food; as neither the environs, nor the lake itſelf, afford any indications of noxious exhalations.

Theſe two places lie to the weſt of Naples, near Pozzuolo, in the vicinity of which is Monte Nuovo, ſo called becauſe it was produced by ſubterranean fires in 1538. It is not very high, and ſeen from the port of Pozzuolo, appears to be an obtuſe cone; but, on reaching the top, we diſcover that this cone is only the exterior part of a crater, the upper edges of which form a circle of about one hundred and fifty feet in diameter.

Like other volcanic craters, the internal ſides of this grow narrow towards the bottom, and both that which I call the bottom, and the external part of Monte Nuovo, conſiſt of a friable tufa, in many places, covered with plants. The ſea bathes the ſides of this volcano, which, if they are dug into a little, as well within the water as without, are found very warm. The ſame warmth is likewiſe perceived at the bottom of the crater. From ſuch excavations, likewiſe, ariſe thin warm vapours. In fact, in the internal parts of Monte Nuovo we find all the laſt remains of volcanic conflagration.

In the external ſides of the mountain many pieces of lava are found, which deſerve notice from their ſingular quality. They are a ſubſtance of a middle character between lava and pumice-ſtone, on which account I ſhall call them pumice-lavas. They have the lightneſs and friability of a compact pumice-ſtone. When broken by the teeth, by which a good judgment may be formed of ſome ſtones, they appear real pumice-ſtone. They are dry and rough to the touch, as is uſual with ſuch kinds of volcanic productions. Their ſtructure is not fibrous, contrary to what we obſerve in common pumice-ſtone, but granulous, and very ſimilar to that of various kinds of lava, as is likewiſe the internal appearance. This production is of importance, as preſenting a middle ſubſtance between lava and pumice-ſtone. The baſe of theſe ſtones is a horn-ſtone, mixed with a few feltſpar ſcales: they ſcarcely adhere to the tongue, and emit a ſlight argillaceous odour. In the furnace they produce a compact enamel, of a dark grey colour, tranſparent at the angles, and which gives a few ſparks with ſteel.

Towards the internal bottom of the crater we find, projecting from the tufa, the ſame kind of lava, penetrated with feltſpars, but more compact and heavy, and interſperſed with beautiful and ſhining veins of black enamel of various thickneſs. I am in doubt whether this ſpecies of vitrification was the conſequence of a greater degree of heat to which the lava had been there expoſed, or whether, from the difference of its quality in thoſe places, it had undergone a more perfect fuſion, and become enamel, while in others it had remained in the ſtate of lava.

On the ſide of this bottom we find, within the tufa, a ſmall cavity, I know not whether formed by nature or art, that abounds with ſaline effloreſcences, which I at firſt imagined to be muriate of ammoniac (ſal ammoniac), or ſulphate of alumine (alum); but their urinous acrid taſte, the green colour which they gave to ſyrup of violets, and other qualities that are proper to ſoda, and which I omit for the ſake of brevity, leave no doubt that they are formed from that ſalt. Beſides theſe effloreſcences, the ſmall hollows, corners, and bottom of this cavity are more or leſs covered with the duſt of this ſoda.

I cannot take leave of this volcano without mentioning an obſervation, which has ſome analogy to what has been before noticed of lake Agnano, as it relates to the ſame ſpecies of animals. On the tufaceous ſides of the crater, both internal and external, as often as I approached them, I ſaw a great number of frogs leaping about. They were nearly half an inch long, and a quarter in breadth. They had the complete form of the frog, were of a dark yellow colour, and their fore feet were divided into four toes, and their hinder into five, though they have not the ſhape of the hand, which conſtitutes an eſſential difference between theſe frogs and the others of theſe countries. But how are theſe amphibious animals produced? Among all the different ſpecies of European frogs (and under this genus I, with Linnæus, likewiſe include toads) I know none which do not begin their exiſtence in water, and continue to live in it ſome time, until they throw off the maſk of the tadpole, and aſſume the ſhape of frogs. But Monte Nuovo is not only entirely without moiſture, but, as I learned from the peaſants who reſide in the neighbourhood, even when heavy rains fall, the bottom of the crater (which is the only place where rain-water can be collected and retained) imbibes all the water immediately; as, in fact, it muſt, ſince it conſiſts of a light ſpongy tufa full of cracks and fiſſures.

The only water near, is that of the lake Agnano, about half a mile diſtant; from which theſe animals might be ſuppoſed to have derived their origin, were it not that the frogs of that lake are of a totally different ſpecies. I muſt therefore confeſs, that the preſence of theſe creatures here was to me an enigma, which, perhaps, I might have been able to have ſolved, not without ſome advantage to natural knowledge, had I been able to have made a longer ſtay in this volcanic country.

Before we reach the promontory of Miſeno we arrive at the harbour, which is a very ſecure baſon, as it is ſurrounded on every ſide by eminences. This was the port for the Roman fleet in the Mediterranean. The eminences are of tufa; and, on one ſide, a little above the level of the ſea, we find a ſpacious cavity, the work of art, called the Cavern of Miſeno, in which the muriate of alumine continually effloreſces. This ſalt is either unknown to or neglected by the inhabitants; though it might be extracted with great advantage, eſpecially were the cavern enlarged, (which it might eaſily be, as the tufa is extremely ſoft,) ſince the ſaline effloreſcences would certainly increaſe in proportion to the enlargement of the ſuperficies.

At the bottom of the cavern there is a well of water bubbling up, with ſometimes more, ſometimes fewer, gaſeous bubbles, which riſe from the bottom. The water is nearly of the ſame temperature with the atmoſphere, and the gas, from the ſcent, appears to be ſulphurated hydrogenous; but I had not convenient opportunity exactly to aſcertain its quality. The ſides and roof of the cavern are ſcattered over with common pumices, containing various feltſpars, ſome calcined and conſequently deprived of their native luſtre, without, however, having loſt their natural cryſtallization, which is rhomboidal.

Beyond

Beyond the port of Miſeno is the promontory of the ſame name, which forms a tufaceous mountain of no deſpicable height; from the top of which ſome admirable proſpects preſent themſelves. This, likewiſe, certainly owes its origin to a volcano, as its crater is ſtill very diſcernible, though in a great meaſure deſtroyed, on the ſouth ſide, by the waves of the ſea.

Having proceeded to ſome diſtance from this promontory, I met with ſeveral lavas immerſed in the tufa, both of the compact and porous ſpecies, but common to other volcanos, and all detached. Mixed with theſe were various pieces of pumice, in like manner detached, in which feltſpars were, I will not ſay ſcattered, but thickly ſown. In a ſquare inch of this pumice I counted fourteen on the exterior ſurface, and forty-ſeven within. They are cryſtallized with various faces, are ſomewhat leſs hard than quartz, and have that changeable brilliancy which is inſeparable from feltſpars. The fire does not appear to have been able to injure them, though it has changed their baſe into pumice, which is in fact a real vitrification.

In front of Procida, and at a little diſtance from it a ſmall low rock projects into the ſea, formerly only known to fiſhermen, and called the *Rock of Burnt Stones*, becauſe it is in fact a mixture of pumices, enamels, and lavas. The firſt naturaliſt who noticed it was the Abbé Breiſlak, who conducted me to it with a particular kind of pleaſure, as a place appertaining to himſelf. A ſtay of two hours, which I made on it, was well rewarded by the objects it preſented. Its elevation above the ſurface of the water is only a few feet, and conſequently in tempeſtuous weather, it muſt be covered by the waves. On making the circuit of it in a boat, and examining it, we find that only the projecting points riſe above the water, and that the body of the rock is below the ſurface. Hence it appears probable, that it was once much larger, but has been in a great degree deſtroyed by the violence of the waves.

The ſtones of which this rock is compoſed are principally of two qualities. The firſt, a lava of a horn-ſtone baſe, light, of a dark grey colour, an earthy grain, unequal, and which gives ſcarcely any ſparks with ſteel. The ſecond is a lava, with a baſe of ſhoerl in the maſs, which has undergone various changes and modifications, according to the different heats to which it has been expoſed. In many fragments, therefore, we only find it a ſimple lava, while, in others, it has become pumice, and in others enamel. In one part they appear of a whitiſh colour, fibrous, light, and extremely friable; but, as their levity and friability diminiſh, they become more compact, and the fibres leſs diſcernible; the colour grows darker, and a glaſſy luſtre begins to appear. A little farther, their fibrous quality is entirely loſt; their compactneſs, weight, hardneſs, and luſtre increaſe, and the unequivocal characters of a perfect enamel are ſeen. This latter is black, gives ſparks with ſteel, and in its appearance reſembles the aſpaltum. Its black colour is interrupted by feltſpars, which are likewiſe common to the firſt lava with the horn-ſtone baſe. They are extremely brilliant, ſomewhat fibrous, cryſtallized in hexaedrous priſms, and ſeveral of them five lines in length.

It frequently happens, that the volcanic productions which exiſt in one place are found likewiſe in another; that is, that in different ſituations the earthy matters and the activity of the fire have been the ſame; a concurrence which may eaſily take place in various parts of the globe; and which is exemplified in the ſimilarity of a corner of the iſland of Procida to the Rock of Burnt Stones. The iſland is ſituated to the weſt of the rock, and is about ſix leagues in circuit. The ſhore, being an accumulated maſs of tufa, abounds with ſhrubs and plants. This tufa on the ſide next Iſchia, having been much corroded by the ſea, affords a diſtinct view of its ſtructure, which is in ſtrata; whence

whence we may infer that it has been the production of ſucceſſive fluid depoſitions. To the north-weſt of the iſland is a rock, on which we find pumices, pumiceous lavas, and enamels, both pumiceous and pure, accompanied with feltſpars, and the other concomitants with which they are found on the Rock of Burnt Stones; on which account it would be only loſs of time to recapitulate their deſcription. I met with only one new ſtone, which was a common granite, in which were diſtinctly diſcoverable its three conſtituent parts: the feltſpar in ſhining needles; a lightly livid, and ſlightly calcined quartz; and a black mica, which did not ſhine. It could not therefore be doubted, that it had been expoſed to the action of the fire. But as I found this granite looſe on the ſhore, detached from the volcanic products I have before mentioned, I ſhall notice it no farther.

From the lavas of the horn-ſtone baſe, found on this rock, we obtain in the furnace a very compact and hard enamel, which affords ſparks with ſteel; and from the lavas the baſe of which is ſhoerl in the maſs, as alſo from the pumice and the enamel, which originate from the ſame ſtone, is produced a ſcorified enamel, ſo ebullient, that a great part of it boiled over the edges of the crucible, though it was only half full. This violent fuſion, however, produced no ſenſible change in the feltſpars.

I ſhall conclude this chapter with an obſervation relative to the enamels of the Rock of Burnt Stones, and Procida. They are extremely friable; a ſlight ſtroke with a hammer will break them into pieces; whereas the enamels of moſt other volcanos, as we ſhall ſee in their reſpective places, poſſeſs conſiderable hardneſs, and a much greater than that of common glaſs. I imagine this defect may be cauſed by the ſea water which is mixed with them, and raiſed from the ſea by the action of fire and aëri-form fluids. Thus we know that thoſe liquid vitreous ſubſtances which are congealed and conſolidated in water, are much more friable than when hardened in the air. I am confirmed in this opinion by obſerving, that a number of cracks and fiſſures are to be found in theſe enamels, an appearance we likewiſe obſerve in glaſs which has been dropped into water while in a ſtate of fuſion. It is to be remarked that theſe enamels, while they were fluid have received within them ſeveral extraneous bodies; as pieces of tufa and lava, ſands and earths of various kinds, which are found within them more or leſs calcined.

It is probable from the ſmall diſtance between Procida and the Rock of Burnt Stones, that they once were joined, and have been ſeparated, in the courſe of a long ſeries of years, by the action of the ſea.

CHAP. V.

CHAP. V.—ISCHIA.

The Caſtle of Iſchia founded on a rock of lava and tufa.—Singular ſpecies of ſwallows, which make their neſts at its top, and on the higher eminences of the iſland.—Lava of the Arſo deſcribed.—Its pumices originate from the horn-ſtone.—The opinion of ſome volcanic naturaliſts, that the lava of the Arſo, which flowed in 1302, ſtill ſmokes, ill founded.—Lavas and pumices ſcattered between the city of Iſchia and the Arſo.—Conical mountain, called the Rotara, compoſed of lavas and pumices,—is the only one in the iſland which contains enamels.—The high mountain of St. Niccola, probably, at firſt, roſe out of the ſea.—Volcanic ſubſtances of that mountain.—Some of thoſe ſubſtances yield ſulphate of alumine (alum).—Excurſion round the ſhore of Iſchia.—Volcanic productions found there.—Ferrugineous ſand abundant on that iſland.—Is found to be all cryſtallized.—Enquiries concerning its origin.—No priſmatic configuration in the lavas which fall into the ſea.—The aſſertion of ſome modern writers, that the lavas of the ſhores of Iſchia are a nidus for the pholades, greatly to be doubted.—The Stoves of Iſchia, the only probable indication of a remaining internal conflagration.—Conſiderable diminution of this iſland.—Difference between the volcanic materials of Iſchia and thoſe of the other Phlegrean Fields.—Singular property of the feltſpars of the Iſchian lavas, which melt in a glaſs furnace, whereas thoſe of other lavas are almoſt always infuſible by its heat.

THE volcanic ſubſtances of which this iſland, eighteen miles in circuit, is internally compoſed, prove, beyond the poſſibility of doubt, that it owes its origin to fire. The obſcure epochs of the eruptions of theſe ſubſtances have been fixed, by conjecture, by M. Niccola Andria, the learned Profeſſor Royal in the Univerſity of Naples, in his intereſting work, entitled, *Delle Acque Termali* *, in which, before he treats of the warm ſprings of Iſchia, he gives a detail of the natural hiſtory of the country, in which he diſplays equal learning and ingenuity. To this work I refer the curious reader, who will find it extremely inſtructive.

I ſhall, however, according to the plan I originally propoſed to myſelf, proceed to deſcribe the principal productions of this iſland which owe their origin to fire, adding ſuch remarks as the ſubject may ſeem to render neceſſary. I ſhall begin therefore at the caſtle of the city of Iſchia, which is built on a rock ſurrounded by the ſea, and a little more than a quarter of a mile in circuit. Lava and tufa are the two component ſubſtances of this rock. The former is different in its appearance, according to the different places in which it is found; but its qualities appeared to me to be ſubſtantially the ſame. Its baſe is hornſtone: it is compact, of a moderate hardneſs, an earthy appearance; of a black colour externally, but greyiſh within. Its dead lurid hue is diverſified by a few ſparkling rhomboidal feltſpars.

The furnace produced from it a very compact enamel, of a mixed colour, between that of honey and dark blue, without any alteration in the feltſpars.

The tufa has no quality by which it is diſtinguiſhed from the common.

On examining the direction of the tufa and the lava, it was found to continue the ſame in the neighbouring mountain, which is ſeparated from the rock by a narrow channel of the ſea: whence it is obvious to infer, that ſeveral currents have deſcended from

* On the waters of hot baths.

the

the mountain and plunged into the water, thus forming the rock, which has been divided from the iſland by the action of the waves.

A number of black and white ſwallows * make their neſts in different parts of this caſtle, and in the clefts of the rock. The ſteep and lofty rocks of the iſland, likewiſe, afford a ſecure retreat to theſe birds of paſſage.

Leaving the caſtle and the city of Iſchia, and proceeding about a mile to the weſt, we meet with a torrent of lava, called the *Arſo*, (or Burnt Ground,) which is the moſt recent of any in the iſland, ſince it flowed in 1302, and is deſcribed by Villani, in his Hiſtory of Florence. It extended about half a mile in breadth, and about a mile and a half in length, and would have flowed farther, had it not met the ſea, in which it was buried. The courſe of the torrent appears interrupted by eminences and deſcents, and, at ſome diſtance, preſents to the eye the reſemblance of an immenſe number of large heaps of mulberries confuſedly thrown together. It has no viſible crater, if by that term we underſtand, as is uſual, a mouth more or leſs enlarged towards the edges, and contracted at the bottom; for the lava iſſued from a narrow cleft at the foot of Mount Tripeta. Though it is little leſs than five centuries ſince this lava flowed, a gloomy ſterility reigns upon it; it does not produce a ſingle blade of graſs, and only affords, in ſome places, a few arid and uſeleſs plants of the lichen, or liverwort. On the ſurface, and for a little depth, it is light and ſpongy, and eaſily crumbles; but deeper, it becomes denſe and harder. The ſame is obſervable in many lavas, and is the natural effect of the laws of gravity: the lighter parts of a liquid maſs riſing to the ſurface, and the heavier ſinking to the bottom.

This lava is of the horn-ſtone baſe, and has an earthy ground. Its colour is different in different places, and varies from that of iron to a reddiſh black. The feltſpars incorporated in it are extremely numerous, and, when attentively examined, in ſome ſpecimens, may induce us to conclude that the fire which produced this torrent muſt have been extremely violent; ſince we find the feltſpars more or leſs melted, though generally, thoſe included in lavas appear not to have undergone the leaſt alteration. When we take the lava of the Arſo from ſome depth, in the middle of the current, we find this fuſion of the feltſpars extremely apparent. Some appear transformed into little globes, or cylinders; others have been only melted on one ſide, on which they have loſt their cryſtallized form, though they have preſerved it entire in other parts. In ſome cavities of the lava, where the fuſion of the feltſpars has been more conſiderable, we meet with ſingular appearances, which well deſerve notice. Sometimes the melted feltſpar hangs, as it were, in the air, attached only by ſome radiating threads of the lava itſelf, in the centre of which it hangs; while another, melting in the ſide of a cavity, takes the ſhape of a tranſparent concave veil. Even thoſe that have not undergone fuſion exhibit deciſive ſigns of a ſtrong calcination. They are extremely friable, and their ſhining changeable colour is in many places turned to a dead white. In conſequence of this calcination, the cryſtals are often no longer found entire, but ſcattered here in ſmall fragments in the body of the lava. Thoſe in the lava on the ſides of the current are leſs injured, and their cryſtallization is in quadrangular faces.

As the volcanic fire had reduced many of the feltſpars in this lava to a ſtate of fuſion, I determined to try what effect I could produce on them in the furnace; but though I kept them there two days, I could only obtain a ſimple calcination.

M. Dolomieu, ſpeaking of the iſland of Iſchia, tells us that the eruption of the Arſo, though we know it continued two years, never produced any pumice, but only black

* Hirundo melba. Lin.

ſcoriæ *. It is true I could only find ſcoriaceous lava on the ſurface, and ſolid lava in the internal parts, through the whole length of the courſe of the torrent, except at the aperture whence it had flowed; where, amidſt a great quantity of fragments of lava, I found ſeveral pieces of pumice ſo completely characteriſed, that there was no danger of confounding them with the light and poroſe ſcoriæ, which have been frequently by perſons of inſufficient diſcernment, taken for pumices. Theſe beſides being dry and rough to the touch, were fibrous, with long fibres, vitreous, extremely light, ſhining, and brittle; whereas the texture of the ſcoriæ and ſcoriaceous lava of the Arſo is granulous, or ſo confuſed that no ſhadow of a fibre appears; nor have they much friability. In other reſpects, theſe pumices of the Arſo agree in ſubſtance with the ſcoriæ and lava of the ſame place; the feltſpars in them are alike, and equally affected by the fire. This obſervation proves therefore, that the horn-ſtone, by a violent fire may be changed into a true pumice, though this tranſmutation rarely happens.

The above-mentioned French naturaliſt likewiſe aſſerts, that the lava of the Arſo ſtill ſmokes in many places; and that the white fumes which riſe from it are very viſible in the morning when much dew has fallen.

This aſſertion, though it muſt appear ſomewhat extraordinary, would certainly merit belief, had M. Dolomieu himſelf been an eye-witneſs to the fact; which had he been, he certainly would have told us. As however he only expreſſes himſelf in general terms, it is probable he relied on the information of others. The Abbé Breiſlak and myſelf made our obſervations on the Arſo, at the moſt proper time for diſcovering theſe fumes. We repaired thither at ſun-riſe, and paſſed there the greateſt part of a morning in which there was no want of dew; but our eyes ſought this wonderful appearance in vain. Nor could we learn that it had been ſeen by any other perſons; thoſe at leaſt of the inhabitants of the vicinity whom we interrogated on the ſubject, and they were not few, nor people likely to deceive us, all declared that they had never ſeen either ſmoke, vapour, or miſt, ariſe from the Arſo. However notwithſtanding this, I will not take upon me abſolutely to deny the fact. I will only ſay, that I find it difficult to overcome my doubts: nor am I convinced by the inſtances adduced by M. Dolomieu, of ſome lavas of Etna which have not yet ceaſed to ſmoke, though they were ejected in 1762; ſince the time elapſed in the latter caſe is only twenty-ſix years, but in the other four hundred and eighty-ſix.

On my return to the city of Iſchia, I met with three lavas riſing from the earth like huge rocks. The baſe of all the three was the horn-ſtone, but they were diſtinguiſhed from each other by certain exterior characters.

One of them was of a cinereous colour, of a coarſe grain, but compact, dry, and rough to the touch. In its external appearance it was not unlike to ſome ſand-ſtones.

The ſecond was of a ground entirely earthy: its compactneſs, weight, and hardneſs were however greater than thoſe of the firſt lava.

The third, in its recent fractures, was half vitreous; gave ſparks with ſteel, but languidly; and was more fixed, heavy, and hard than the two others.

All theſe three lavas had an argillaceous ſcent, and contained numerous feltſpars ſo brilliant and perfect that they appeared to have entirely eluded the violence of the fire.

A number of detached pumices accompanied theſe lavas, which they reſembled in their general qualities; they contained feltſpars and ſhoerls, but both reduced to a beginning ſtate of fuſion.

* Catalogue Raiſonnée des Produits de l'Etna.

But

But no part of the iſland ſo abounds with pumices as the Rotaro, a mountain ſituated between Caſamicciola and the city of Iſchia. This mountain is of a conical ſhape, and compoſed of tufa, pumices, and enamels. It appears to have been produced by a thick and ſlimy eruption, and is divided into ſeveral ſtrata, particularly diſtinguiſhable in the road called *Via del Rotaro*. Between theſe ſtrata there is an immenſe quantity of pumices, differing in their ſize, colours, and denſity; but ſimilar in their texture, which in all is fibrous. They contain various feltſpars, which manifeſt a beginning fuſion. They do not form continued currents, as we obſerve in many of the pumices of Lipari, but are found in detached pieces; yet ſo diſpoſed, that in many places they form beds or ſtrata. It appears extremely probable, that the volcano, after an eruption of tufa, threw up a ſhower of pumices, which falling on the tufa produced a bed or ſtratum, upon which another eructation formed another tufaceous ſtratum, that was again covered with another ſhower of pumices; and thus by alternate ejections of tufaceous and pumiceous matters, a great part of the conical mountain was formed. The extent of the pumices, in the direction of the *Via del Rotaro*, is more than a mile; and they principally abound in the more elevated places, where thoſe moſt proper for the purpoſes for which theſe ſtones are uſed in Italy, may be collected in great abundance.

Intermixed with the pumices and tufa, we find many pieces of enamel, the thickneſs of which is from an inch to a foot and a half, and even two feet. Theſe were probably thrown out at the time when the above-mentioned mountain was formed. They are of a black colour, and yield to the ſtrokes of a hammer much more than the enamels of the Rock of Burnt Stones and Procida. Like them, they abound in feltſpars, and preſent the uſual rhomboidal figure. The Rotaro is the only place in Iſchia which affords enamels.

It ſeems as if it might be conſidered as an invariable rule, that among the mountains of different elevation which have given birth to volcanic iſlands, that which riſes above the reſt, and is commonly placed in the centre, was firſt produced by the fire; and that thoſe which ſurround it, and by their junction and extent form the body of the iſland, are the work of ſucceeding eruptions, which have iſſued either from the crater of the primitive mountain, or from the lateral and lower craters, whence have been ejected that aggregate of ſubaltern and ſucceſſively lower mountains, by which the moſt elevated, which occupies the centre is ſurrounded. In this manner we perceive ſeveral of the Eolian iſles to have been formed. Such alſo has been the origin of Iſchia; where the mountain of St. Niccola, which in earlier times was called Epopeo, and which is in the centre of the iſland, and higher than the reſt, was no doubt the firſt that towered above the waves. The conſtituent ſubſtances of this mountain are of various kinds. I have conſidered, with ſome attention, thoſe on the ſide of Lacco, which are ſtones that in the ſame manner as thoſe of Solfatara, have undergone a decompoſition probably to be attributed to ſulphureous acids, if from the reſemblance of effects we may argue a ſimilarity of cauſe. The rocks near the ſea on the coaſt of Faſano are leſs decompoſed; nor is it difficult to diſcover their nature, which is granitous; the mica, feltſpar, and quartz, being clearly diſcernible, with ſome greeniſh particles of ſteatites. The quartz and feltſpars, though ſomewhat calcined, are tolerably hard; and the mica which is black, has not loſt its native ſplendour. This rock, which does not appear to have ſuffered fuſion, is whitiſh, and changed in ſuch a manner that it will not reſiſt a blow of the hammer.

Proceeding towards the ſummit of the Epopeo, we meet with decompoſed lavas, partly of the horn-ſtone baſe, and partly of that of the petro-ſilex, in which however the argilla occupies no ſmall part. The lavas of this latter quality, in part not affected by

by the ſulphureous acids, are of a black hue, of conſiderable compactneſs, give ſparks freely with ſteel, and in their fractures, and ſometimes externally, preſent a ſiliceous appearance. Their odour is ſenſibly argillaceous. Theſe petroſiliceous lavas are not ſimple, but contain within them ſome ſmall flakes of feltſpar and mica.

In the furnace they melt into a ſubſtance of the colour and luſtre of pitch, in which however the white feltſpars appear, or rather are conſpicuous.

Theſe lavas are found to be variouſly decompoſed by the acids, in the ſame manner as is obſervable in thoſe of Solfatara. In ſome places they are covered with a thin whitiſh cruſt, light, ſoft to the touch, which attaches to the tongue, and is extremely friable. In others this cruſt is ſome inches deep, and in others it extends through the whole thickneſs of the lava. Sometimes we find it ſo ſoftened that it has become pulverous; and there is a great quantity of white duſt on the brow of the mountain. We may therefore conclude that the ſulphureous acids have there been very abundant, and of long duration; though now there is no perceivable ſign of any ſuch exhalations.

We know that formerly in Iſchia the ſulphate of alumine (alum) was extracted for commercial purpoſes; and according to M. Andria, who has been before cited, the manufacture of this ſalt was principally carried on at Catrico, a place ſituated above Lacco, on the higher eminences of the Epopeo. He informs us however, that he was not able, after the moſt careful and minute reſearch, to diſcover any remaining veſtige of ſulphate of alumine. I will candidly ſtate what I myſelf obſerved.

I collected a number of ſpecimens of the different lavas of Catrico and the environs. They are generally compact, very white, and homogeneous to the eye; but they differ from each other by the following exterior characters. Some are moderately heavy and hard; in their recent fractures, and frequently without, they are ſmooth; and in the centre of ſome we find a ſmall nucleus of blackiſh lava, but little decompoſed. Others are very light, may be ſcratched by the nail, are rough and ſomewhat pulverous in their factures, and ſcarcely ever contain within them any reſidue not decompoſed. In ſhort, the former lavas have undergone leſs change by the ſulphureous acids than the latter. When I firſt examined on the ſpot the fragments of theſe two lavas, I could not perceive by the taſte any ſymptom of the ſulphate of alumine; but when I had conveyed my ſpecimens to Pavia, together with other volcanic ſubſtances, and placed them in my cabinet, on large tables, after ſome months I obſerved the following appearances:

In the lavas of Catrico and its vicinity, which had been leſs affected by the acids, I could diſcover no trace of alum; but in the other lavas of the ſame ſituation, which had been more changed by the ſaid acids, I perceived the ſweetiſh and aſtringent taſte of that ſalt; and could diſcover a whitiſh thin coat of the ſame, which entirely incruſted them.

At the end of ſix months the thickneſs of this coat was a quarter of a line; after which, I did not perceive it to increaſe in thickneſs. I made new fractures in theſe lavas, and continually diſcovered new coats of the ſulphate of alumine; and at the time I now write, which is twenty-ſeven months ſince I brought the ſpecimens of lava from Iſchia, they ſtill retain a thin ſaline cruſt. I have alſo ſatisfactorily aſcertained the true nature of this ſulphate of alumine, by the ordinary chemical proofs.

As to the ſecond ſpecies of lava, it never at any time exhibited any ſign of the preſence of this ſulphate; nor have I been able to obtain it by calcination, and a method ſimilar to that which is employed in the territory of Civita Vecchia for extracting alum from ſuch argillaceous ſtones.

Theſe

Theſe obſervations however ſufficiently prove, that this valuable ſalt might ſtill be obtained at Iſchia; nor ſhould it excite ſurpriſe that, when on the ſpot I could not diſcover it by the taſte; ſince the humidity of the night, the dew, and ſtill more the rains, had diſſipated it as faſt as it efflorefced. As the ſpecies of decompoſed lava in which I diſcovered it, is found in very large quantities on the Epopeo, this branch of commerce, which has been ſo long neglected in Iſchia, might doubtleſs be revived with very great advantage.

Beſides the places I have mentioned, I examined this iſland in many others, without diſcovering any novelty worthy of remark; but I could not entirely ſatisfy myſelf with ſuch excurſions. When I firſt formed the deſign of attentively examining Iſchia and the Eolian iſles, I reſolved not only to make my reſearches in their interior parts, but to coaſt their ſhores in a boat, landing at ſuch places as appeared the moſt ſuitable to my enquiries. In this manner I met with many volcanic bodies, which I ſhould have ſought in vain within the iſland; either becauſe they do not exiſt there, or becauſe they are rendered inacceſſible by the rocks and precipices with which they are ſurrounded, or which they themſelves form. The coaſts of the volcanic iſles are alſo clothed with lavas, which run out into the ſea, and which in ſome places, by tracing them upwards, diſcover the crater or mouth from which they have iſſued. Laſtly, by coaſting the ſhores of the iſlands, we may be enabled to determine whether the priſmatic lavas owe their origin to the ſea; many writers of repute having aſſerted that the regularity of their form ariſes from the ſudden congelation that takes place on their precipitating into the ſea-water, which cauſes them to take the ſhape of regular priſmatic columns; a configuration which they affirm is only found in places adjoining to the ſea.

For theſe reaſons I determined, after having examined the higher parts of the iſland, to proceed to conſider the lower; and took my departure from Lacco by water, coaſting the iſland on the left. The firſt mountain which preſented itſelf was the Vico, partly formed of tufa, and partly of two currents of lava, which deſcend into the ſea. The colour of the firſt, which is of a horn-ſtone baſe, is between the grey and iron colour: it is of an unequal grain, earthy, and moderately hard; and abounds in felt-ſpars, ſome in thin plates, others in priſms, and both conſpicuous for their brilliancy.

The other lava, which is of the ſame baſe, and contains ſimilar feltſpars, is leſs compact, more earthy, and conſequently leſs hard: its colour is partly cinereous, and partly grey. Theſe two lavas, in their deſcent, have raiſed themſelves into litte mounts, and are of a conſiderable thickneſs.

Farther on is Monte Zaro, formed towards the ſea by a river of lava extending a mile in length, and nearly two in breadth. It appears to have been generated by ſeveral ſucceſſive eruptions, which have conſolidated one after the other. The baſe of this lava is horn-ſtone, and it contains mica and feltſpars. It is various in its colour, being in ſome parts of the current of a more or leſs reddiſh blue, in others cinereous, and in others white. The mica, which is black, and eſpecially conſpicuous in the white pieces, though it has not undergone fuſion, has loſt its luſtre, and acquired a much greater degree of friability than it naturally has. The ſame has not happened to the feltſpars, which are as well preſerved as if they had never been expoſed to the fire. They give ſparks plentifully with ſteel, have a beauteous changeable luſtre, are of a vitreous ſemi-tranſparent whiteneſs, and being broken, are detached with difficulty. This ſpecies of lava ſo abounds with them, that they occupy the full half of its volume. The greater part are priſms.

Another lava makes a part of the ſame current of Monte Zaro. This, though it is likewiſe of a horn-ſtone baſe, differs from the former by being one-third leſs heavy, and

of

of an earthy appearance; whereas that of the other is somewhat vitreous. Its colour in the more internal parts is reddish; but in the external an ochreous yellow. On the surface especially it is manifestly decomposed; for it is become so soft that it may be scraped with a knife. But the cause which has produced this superficial decomposition in the lava has not injured the feltspars, which are extremely perfect, and in this lava may be easily extracted to examine their figure, which is hexagonal with rhomboidal faces. Some of them are half an inch in length, though others are not more than a line.

The bottom of Monte Zaro, which is washed by the sea, is covered with a vitreous sand; which viewed with a lens, appears to consist of a number of particles of feltspars, which by liquefaction have had their angles blunted, and been reduced to a roundish figure. They belong to the feltspars of the last-mentioned lava.

From the termination of Monte Zaro to the beginning of Monte Imperatore is a long and ample tract, almost entirely tufaceous, scattered over with *rapillo*, as the Neapolitans call it; or as a naturalist would say, with fragments of pumice.

The side of Monte Imperatore which overhangs the sea, derives its origin from a very singular species of lava. I have already spoken of the abundance of feltspars in the lava of Monte Zaro; but in this they are found so prodigiously numerous, that at first view they appear to constitute the entire substance. It is necessary to break it, and consider the pieces attentively, to perceive that it has a base, which is of a yellowish earthy horn-stone, easily friable, to very small quantities of which the feltspars are feebly attached. Their crystallization is in rhomboidal faces of various sizes, from a line to three quarters of an inch. To this little earthy base are likewise attached various small scales of black hexædrous mica.

The same Monte Imperatore presents us on the side of the sea with large quantities of another lava; which, excepting a very few particles of yellow mica, and some still fewer microscopic feltspars, may be considered as simple. This likewise has for its base the horn-stone. The lava appears to have issued from the mouth of the volcano at different times, as we find currents which have flowed over currents, intermixed in a strange and confused manner.

Leaving the Monte Imperatore, we next arrive at the Calle di Panza; a place on the shore from which rises a very high and large rock of lava, interrupted by some protuberances, that attract the eye at a distance and invite observation, which they certainly merit, as they consist of beautiful groups of numerous rough romboidal feltspars, some two inches in length. They are of a yellowish white, transparent in a slight degree, of a vitreous appearance, a changing aspect, a foliating texture, and manifest their hardness by the quantity of sparks they give with steel. Many hundreds of them grouped together, form roundish masses of half a foot, a foot, and two feet in thickness, which at their lower extremity are set in the lava. Though, as has been said, they are very hard; yet by the means of certain fissures they contain, they may easily be divided into small pieces, either of the parallelopipedon or rhomboidal form. Whence it appears that they have been injured by some external agent, but which seems to have had no relation to sulphureous acid vapours, as we do not perceive the smallest indication of these, either in the feltspars or in the lava which contains them. This agent however, whatever it may have been, has produced a considerable effect on the lava, which is corroded in every part; and it is in consequence of its being so deeply corroded, that the groups of feltspars have been left uncovered, so that they may easily with an iron point be extracted entire.

This

This fact appeared to me the more deſerving of remark, as in all my former volcanic reſearches I had never met with any ſimilar: nor indeed have I ſince; the feltſpars of other lavas being never grouped, or forming a kind of tumours, but ſcattered and diſtributed within them in equal quantities. But in what manner are we to conſider theſe tumours? Are they extraneous bodies that have been by accident included within the lava while it was in a fluid ſtate? This is poſſible; but it appears to me much more natural to ſuppoſe that they appertained to the ſtony ſubſtance which has been changed into lava by the violence of the fire. I would therefore thus explain this phenomenon. Since as we have already obſerved, the feltſpars (and the ſame may be affirmed of the ſhoerls) are not the produce or conſequence of the fire, as they are found to exiſt in many of the primordial rocks; it appears moſt probable that they were formed within thoſe rocks when they were in a ſtate of fluidity, or at leaſt ſufficiently approaching it.

I mean to ſay, that then the integrant particles of the feltſpars by their powerful affinity, united in chryſtallized maſſes. Where they were at a certain diſtance from each other they united, forming complete cryſtals; but where they were thickly cluſtered, their tumultuary union produced groups of cryſtals, the greater part of which were of irregular forms. The ſame may be obſerved in ſalts, ſtones, and eſpecially in quartzoſe and ſparry cryſtals. Thus, with reſpect to the feltſpars in this lava: they are contained in every part of it; and where there is any ſpace interpoſed between them, their cryſtallization is perfect; but very imperfect in their groups I have deſcribed, and probably from the cauſe ſuggeſted above.

This lava, like the preceding, has for its baſe the horn-ſtone; and the external appearance of its current reſembles that of a ſtream which precipitating from a height, has been ſuddenly congealed and hardened by cold. It abounds therefore in inequalities, elevations, and deſcents; and on obſerving its principal track, which paſſes by the Calle di Panza, we are led to expect that the aperture whence it flowed lies higher in the direction of that place where it is in fact found.

A ſtrong wind riſing from the ſouth, though it did not prevent me from coaſting the iſland, hindered me from landing, as there was danger of being daſhed on ſome rock by the violence of the waves. I could therefore only obſerve at a diſtance a variety of lavas, and a great quantity of tufa, which being continually beaten and diminiſhed by the waves, form precipices and cliffs hanging over the ſea.

I however continued my reſearches by removing to the northern ſide of the iſland, where I was ſheltered from the wind; but I did not find that the volcanic productions to be met with here preſented any novelty. They were almoſt all of the horn-ſtone baſe, and filled as uſual with cryſtallized feltſpars.

I did not fail to collect and examine the ſand of the other parts of the iſland where I landed, as well that of the ſhore near Monte Zaro. I found it as I expected, to be of the ſame nature with the volcanic productions at the foot of which it was found. The greater portion of the ſand conſiſted however of ſmall fragments of feltſpars; that being the ſtone which moſt abounds in theſe lavas, and which beſt reſiſts the viciſſitudes of the ſeaſons, and every extrinſic injury.

I muſt not omit to mention the ferrugineous ſand which we meet with in many parts of the iſland, and which is eſpecially abundant on the ſea ſhore. It not only moves the magnetic needle, but is ſtrongly attracted by the loadſtone. This ſand is well known in Naples and other places; but one of its qualities which I diſcovered with the aſſiſtance of a lens, has not to my knowledge been hitherto obſerved. At the firſt view I imagined with the generality of naturaliſts, that it muſt conſiſt of very minute particles of iron, of entirely irregular ſhape, like thoſe of lapidarious ſands. Such in fact, they appeared to

the naked eye; but, by the aid of a good lens, I diſcovered with pleaſing ſurpriſe, that every grain was the fragment of a cryſtal, or a complete ſpecular cryſtal of iron. Of the latter there were not more than three or four among every hundred grains. Theſe ſmall material cryſtals are formed of two quadrangular pyramids united at the baſe, and every ſide of the pyramid is a rectangular or iſoſcles triangle. But in general we meet with only the fragment of a cryſtal, and perceive that the part wanting has been deſtroyed by the action of the waves of the ſea on the ferrugineous ſand; many of the grains exhibiting their angles blunted, and having aſſumed a globoſe figure.

This ſand is not confined to Iſchia; it is likewiſe found in conſiderable quantities on the ſhore of Pozzuolo. But what is its origin? It is certain that this iron could not thus have cryſtallized without having a baſe, or point of ſupport; and in the volcanized countries, no ſubſtance preſents itſelf more proper for ſuch a baſe than the lava, on and within which it has aſſumed this configuration: but it muſt be allowed that this lava has been deſtroyed by length of time, ſince, among the innumerable ſpecimens I have obſerved in theſe countries, I have not found one which exhibited ſimilar martial cryſtals.

While making the circuit of this iſland, I continually had in my recollection the opinion of thoſe naturaliſts who, as I have mentioned above, maintain that the formation of priſmatic lavas owes its origin to the ſudden immerſion of the flowing lava into the water. I could not have wiſhed a better opportunity to form a judgment on this hypotheſis, than I here found; where a multitude of currents of lava, in different directions, appear to have ruſhed into the ſea, in which they are ſtill viſible to a conſiderable depth. But I did not meet with one that had aſſumed any ſuch regular form, or any other reſembling it; either among the lavas above the water, thoſe which touch its ſurface in their deſcent, or thoſe immerſed within it, as far at leaſt as the eye could diſcern.

From the obſervations I made while coaſting this little iſland, I was likewiſe ſtrongly induced to doubt of a fact expreſsly aſſerted by M. Andria, in theſe words; "The lavas, in ſome places near the ſea ſhore, are found full of holes made by the pholades; at leaſt I am of opinion they are to be attributed to thoſe animals, though I could not find in them any fragments of their ſhells."

He then immediately proceeds to reaſon on this fact: "It is manifeſt that the pholades were directed by inſtinct to make their lodgements here; but they could not do this till after a long time, when the lava was become fixed and ſolid."

I ſhall not venture expreſsly to contradict this aſſertion, as I was not able to examine the whole ſhore of Iſchia; and, even if I had examined it, I ſhould ſtill have diſtruſted my reſearches; ſince I could not have been certain that I had explored the preciſe places of which he ſpeaks, as they are not diſtinctly deſcribed. I ſhall only candidly ſay, that I greatly fear there is ſome miſtake, ſince I never met with any lavas, or other volcanic ſubſtances, which had been made the habitation of the pholas, whether by that name he underſtands the *mytilus lithophagus* or the *pholas dactylus* of Linnæus. In my reſearches relative to marine animals, I have given particular attention to thoſe which pierce and inhabit ſub-aqueous ſtones. I have examined, with the utmoſt care, the volcanic ſubſtances of Etna, which are bathed by the ſea, thoſe of the Eolian iſles, and ſome of thoſe of Veſuvius. Nothing is more frequent than to find on theſe, various kinds of teſtaceous animals, as oyſters, ſerpules, lepades, and various others of the ſame ſpecies; but I never found them pierced by pholades, or any other animals which corrode foſſil ſubſtances. I have found theſe animals in places not volcanic, though not in all, as I have obſerved that they never make their lodgements but in calcareous ſtones, of which kind the Iſchian lavas, and in general, other lavas, are not.

I therefore incline to ſuſpect that ſome other cavities, reſembling thoſe which are the work of the pholades, have deceived M. Andria. I could at leaſt wiſh that he would aſcertain the fact by repeating his obſervations on the ſpot, as, ſhould it be eſtabliſhed, it would, in my opinion, be the only example of the kind ever diſcovered in volcanized ſtones.

I employed three days in examining this iſland; and, during my reſearches, carefully obſerved whether I could diſcern any ſmoke or vapour ariſing from the ground, whence it might be concluded that the volcanic conflagrations were not entirely extinguiſhed; but I could not diſcover the leaſt appearance of the kind, nor had any been obſerved by the oldeſt inhabitants of the vicinity, of whom I made the moſt careful enquiries. The ſtoves of Iſchia may, however, induce us to be of a contrary opinion. It is well known that theſe ſtoves are filled with warm aqueous vapours, which continually iſſue from cracks and fiſſures in the lava, and which, though they have ſome of the noxious qualities common to volcanic exhalations, are extremely beneficial in many diſorders. Theſe certainly can only be produced by a heat which, whatever may be the cauſe of it, raiſes the ſubterraneous water in vapour.

This iſland, when it was firſt produced by conflagrations in ancient, and, to us, unknown times, muſt have been of much greater extent than it is at preſent. The ſouthern ſide, expoſed to a ſea which beats againſt it without any interpoſing obſtacle, and formed in many places of tufa, one of the leaſt hard of volcanic ſubſtances, muſt have been conſiderably worn away and diminiſhed; and this diminution muſt continually increaſe. Time, which changes and deſtroys every thing, has likewiſe produced a great alteration in the interior parts of the iſland. From the ſummit of Epopeo, we diſcover a number of conical eminences; but their internal craters no longer exiſt, nor do we find in Iſchia inconteſtible traces of a ſingle one, ſince thoſe depths and ample cavities, thoſe reſemblances of theatres and amphitheatres, which we obſerve around us, may be equally the effect of fire or water.

I ſhall conclude theſe obſervations by an important reflection on the volcanic materials of Iſchia. Theſe are different from thoſe of the other Phlegrean fields. Except the mountain Veſuvius, the extenſive plain on which the city of Naples ſtands, the ſurrounding hills to the north, the north-weſt, and the weſt, the craters of the lakes Agnano and Averno, many parts of Solfatara, Monte Nuovo, the promontory of Miſeno, Procida, &c. they are the reſult of tufaceous ſubſtances. Theſe are, in fact, not wanting in Iſchia; but the predominant part of its compoſition is various kinds of rock, and principally the horn ſtone. The eruption of the Arſo, likewiſe, which is the laſt conflagration of which we have any knowledge, is compoſed of the ſame ſtone. The ſubſtances, therefore, which have furniſhed aliment to the different conflagrations of Iſchia, have had their centre in thoſe argillaceous rocks, which by the above-mentioned eruption in 1302 ſhewed that they were not then exhauſted.

Theſe rocks, as we have ſeen, abound in cryſtallized feltſpars, which in the furnace exhibit a quality we rarely meet with in the feltſpars of other lavas ſubjected to the ſame degree of heat. I mean their fuſibility. If we except thoſe of the Arſo, which do not yield to the fire, all the feltſpars of theſe lavas may be perfectly liquefied. The lava, in which the feltſpars are contained, acquires a clear colour, and becomes ſlightly tranſparent; while in other parts it preſents an opaque and inperfect enamel. If the quantity of the feltſpars included is more than double that of the lava, the product which reſults is a true glaſs, but ſomewhat leſs tranſparent than factitious glaſs; but when the feltſpars are ſolitary, and not at all injured by the lava, like thoſe of the Calle di

Panza, the glaſs is perfect and extremely tranſparent. It has no colour, is very compact, and gives ſparks ſtrongly with ſteel. To bring it to this perfection, it requires a fire of about two days. At the end of the firſt day, the feltſpar is only reduced to a paſte, ſimilar to porcelain; the pieces then conglutinate together; many exhibit a ſemivitrification, and the ſurface within the crucible is not horizontal and even, but has riſings and cavities, according as the pieces have been put in: by continuing the fire, however it becomes level and ſmooth.

The proſecution of theſe experiments induced me to attempt to fuſe, with the ſame degree of heat, two other feltſpars which are not from volcanic countries; the one being from Mount St. Gothard, and the other from Baveno. Father Pini has the honour of their diſcovery. The firſt is in maſs, of a ſhining white, foliated, and very hard. I kept it in the furnace during eight-and-forty hours, but it had only contracted a ſlight ſuperficial vitreous appearance. When placed within two crucibles joined by their tops, with charcoal entirely ſurrounding them, in a furnace, the fire of which was violently excited by the bellows for two hours, the angles of this feltſpar became blunted, and the pieces attached together, contracting a ſmooth ſurface, and a milky whiteneſs, but without any ſenſible fuſion taking place in the internal parts.

The other feltſpar, from Baveno, is cryſtallized in tetrahedrous priſms, opaque, leſs hard than the former, and of a reddiſh yellow colour. After continuing forty-eight hours in the furnace, a ſlight conglutination took place in the pieces, which had acquired a ſnowy whiteneſs.

On comparing theſe two feltſpars and others contained in innumerable lavas, with thoſe of the Iſchian lavas, we may conclude that it is very rarely that the fuſion of theſe ſtones can be obtained by the utmoſt heat of a glaſs furnace.

From theſe obſervations on the lavas of Iſchia we likewiſe learn another truth. Mineralogiſts have ſaid that ſhoerls are more eaſily fuſible than feltſpars; becauſe they have obſerved that the degree of heat in which the former fuſe is inſufficient to fuſe the latter. But I have experienced that this aſſertion is not always true; and it will be ſeen in the courſe of this work, that the ſhoerls of ſome lavas will reſiſt the ſame degree of heat in which the feltſpars of Iſchia are completely fuſed. The cauſe of this may be, either that the ſilex ſometimes is leſs abundant in the feltſpars than in the ſhoerls, or that their component principles are proportioned in ſuch a manner, that the fuſion of ſome is facilitated more than that of others, or becauſe they contain more iron, it being well known that this metal promotes the fuſion of ſtones.

CHAP. VI. — THE VALLEY OF METELONA, NEAR CASERTA.

The tufa found in this valley, compoſed of fragments of pumice ſurrounded by calcareous earths.—Pieces of enamel mixed with it.—This tufa different from other volcanic tufas.—Probability that it communicates with the volcanos of Naples and its environs, and perhaps alſo with thoſe of the Agro Romano and Tuſcany.—Means propoſed to aſcertain whether the Bay of Naples be the remains of an ancient volcanic crater, and to what diſtance within the ſea the roots of Mount Veſuvius and thoſe of Iſchia extend.

AN excurſion from Naples to Caſerta, and thence to the neighbouring aqueducts, furniſhed me with an opportunity for new volcanic obſervations. Some miles before we arrive at the ſmall city of Caſerta, ennobled by the ſuperb royal palace, which may be ſaid to conſiſt of four grand palaces united in one by the hand of a maſter, we meet with calcareous earth, which continues to the aqueducts, diſtant ſix miles from that city, and which are a prodigy of art. They conſiſt of a large and magnificent bridge, of the aſtoniſhing length of two miles, and of a proportionate breadth. Within this bridge runs a wide canal, brought from a mountain at the diſtance of twenty-ſix miles, which, paſſing through ſubterranean conduits, ſkirts the ſide of the hill, and deſcends to Caſerta, near the Royal Gardens. As the neighbouring mountains abound in calcareous ſtone, I was not ſurprized to find the pavement of the bridge formed of that ſtone; but it ſomewhat excited my attention when I perceived that the remainder of the edifice was conſtructed with volcanic tufa, in which are mixed ſome pieces of enamel. Sir William Hamilton has told us, that in the environs of Caſerta, below a ſtratum of vegetable earth four or five feet in thickneſs, we meet with cinders, pumices, and fragments of lava; and that, on digging near the foundations of the above-mentioned aqueducts, volcanic earths are diſcovered. I therefore firſt conjectured that the tufa had been procured from theſe ſubterranean places; an opinion in which I was confirmed by obſerving that the whole country round was calcareous, not excepting the higheſt mountains, which were, nearly all, of the ſame contexture and colour with the chains of hills between Naples and Loretto. One of the inhabitants of this part of the country, however, aſſured me that this tufa was dug from a plain, about a mile diſtant to the north, called the *Valley of Metelona*, of which I was convinced, on repairing to the ſpot. This tufa, in ſeveral places, lies in heaps on each ſide of the public road, principally near the *Taverna*, where we find the excavations, not within but above the ground, which have in part ſupplied materials for theſe aqueducts. This tufa is extremely porous, and being immerſed in water attracts it forcibly, and with a ſlightly hiſſing ſound, as is the caſe with other bibacious bodies. Like tufas in general, it has a moderate weight and conſiſtence, is rough to the touch, and inclines to a yellow colour. But on a more minute examination, it diſcovers its original, and is found to be compoſed of a mixture of ſmall fragments of pumice, and any piece of it detached from the maſs will be found to contain fragments of that ſtone. It appears as if compoſed of ſmall threads extended lengthwiſe, which viewed with the lens are found to be ſlender filaments, extremely friable, and generally parallel to each other. It contains many cavities, within which the pumice appears changed into vitreous balls; we likewiſe find little globes of pumice, which have an external vitreous coat, but which, within, have preſerved their fibrous nature:

laſtly, in ſome parts of this tufa are contained pieces of ſolid enamel, extremely friable, ſhining, and in their fractures reſembling aſphaltum.

The tufa now deſcribed is of a ſingular quality; at leaſt in my travels through the Two Sicilies, I have not found any reſembling it. The others are uſually of an argillaceous baſe; this, as has been ſaid, is a compoſition of fragments of pumice. Hence we may eaſily conceive that the reſults produced by the furnace muſt be different. The tufa of Metelona afforded a true enamel, but the others remained infuſible.

The edges of the tufa, or rather of the broken and half pulverized pumices, are ſurrounded with calcareous ſtone. There is, however, no doubt that theſe pumices, beſides having deep roots, extend likewiſe laterally among the ſtone to a great diſtance. Theſe volcanic matters have probably an immediate communication with the volcanos of Naples and its environs, as alſo with thoſe of the Agro Romano, and perhaps alſo with thoſe of Tuſcany, ſo as to form a ſoil entirely volcanized, of immenſe extent.

Some have conjectured, and perhaps not without reaſon, that the great baſon of the ſea, called the bay of Naples, in front of Capri, is the remains of an ancient volcanic crater. It would contribute to the advancement of natural knowledge, were the bottom to be explored, at various diſtances from the ſhore, by the means of ſuch inſtruments as are employed to fiſh up coral, and ſometimes pieces of the rock on which it grows. Should we by ſuch means diſcover a cavity ſimilar to an inverted funnel, or draw up ſubſtances from the bottom, which ſhould be known to owe their origin to fire, this conjecture would become a well-founded opinion.

A portion of the roots of Mount Veſuvius are bathed by the ſea. Who can ſay how far theſe roots may extend under the water? The ſame may be remarked of Iſchia, which, perhaps, as ſome have conjectured, was anciently joined to Procida: it were to be wiſhed that we could obtain facts that might aſcertain the truth of ſuch conjectures. It is well known how far Sir William Hamilton has extended the limits of the volcanization of the Phlegrean fields, by land; and there is no doubt but they might be ſtill more enlarged by ſea. The experiments neceſſary for this are certainly difficult, but not impoſſible. The induſtry of two Italians of merit, the Count Ferdinando Marſigli, and Vitaliano Donati, has made us acquainted with the nature of the bottom of ſome parts of the Mediterranean, and the Adriatic. In the courſe of this work I ſhall ſtate what I have obſerved relative to the bottom of the famous ſtrait of Meſſina, and that in which the channels that ſeparate the Eolian iſles terminate. It is greatly to be wiſhed, for the advancement of volcanic knowledge, that the bottom of the ſea near Naples, and the adjacent places, might be explored by ſimilar experiments.

Engraved by George Cooke.

Etna

From the Garden of the Prince of Biscaras near Catania

CHAP. VII. — JOURNEY TO MOUNT ETNA.

Comparison between Vesuvius and Etna.—The lavas of the latter volcano begin to appear, from the sea, at the distance of thirty-seven miles from Messina.—Different epochs of the flowing of these lavas.—Modern Catania almost entirely built of lava; as was the ancient city, which was destroyed by an earthquake in 1693.—*Remarks on the observations of Mr. Brydone, relative to Etna.—Uncertainty of the opinion of Count Borch, that the age of the lava may be calculated by the quantity of vegetable earth produced by time.—Fruitless attempts to render cultivable the eruption of* 1669.—*The thinness of the crust of vegetable earth, the cause of the fertility of the lower region of Etna.—Monte Rosso.—Eructation of its lavas.—Abundance of shoerls on this mountain.—Chemical analysis of these shoerls.—Feltspars not always more difficult to fuse than shoerls.—View from Monte Rosso of the whole current, which in* 1669 *flowed into the sea.—Calamities suffered at different times by St. Niccolo dell Arena from the eruptions of Etna.—Lavas of the middle region.—Its great celebrity for luxuriant vegetation, and the loftiness of its trees.—Great antiquity of these two regions.—Grotta delle Capre.—Nature of the lavas of that grotto.*

THOUGH Vesuvius, considered in itself, may be justly called a grand volcano, and though, from the destruction and calamities it has at various times occasioned, it has continually been an object of consternation and terror to the inhabitants of the neighbouring country; yet when it is compared with Etna it must lose much of its celebrity, and appear so diminished, that if the expression may be allowed, it may be called a volcano for a cabinet. Vesuvius does not, perhaps, rise higher than a mile above the level of the sea; and the whole circuit of its base, including Ottajano and Somma, is not more than thirty miles; while Mount Etna covers a space of one hundred and eighty, and in its height above the sea considerably exceeds two miles. From the sides of Etna other lesser mountains rise, which are as it were its offspring, and more than one of which equals Vesuvius in size. The most extensive lavas of the latter mountain do not exceed seven miles in length; while those of Etna are fifteen or twenty, and some even thirty miles in extent. The borders of the crater of Mount Etna are never less than a mile in circuit, and according to the changes to which they are subject, sometimes two or three miles; it is even reported, that in the dreadful eruption of 1669 they were enlarged to six *. But the circumference of the Vesuvian crater is never more than half a mile, even when widest distended, in its most destructive conflagrations †. Lastly, the earthquakes occasioned by the two volcanos, their eruptions, showers of ignited stones, and the destruction and desolation they occasion, are all likewise proportionate to their respective dimensions. We cannot therefore wonder that visits to Vesuvius should be considered as undertakings of little consequence, and never be made public, except lavas should have been flowing at the time; while a journey to Etna is considered as no tri-

* Borelli, Hist. Incend. Ætnæ, an. 1669.

† I know not how M. Sage was led into so strange an error as to assert that the crater of Vesuvius is more than three miles in diameter. (Elem. de Min. tom. 1.) Were this true, the circumference of the Vesuvian crater must be nearly ten miles, an extent which perhaps the crater of no volcano in the world ever had.

vial

vial enterprife, both from the difficulty of the way, and the diftance; as from Catania, whence it is ufual to fet out, it is thirty miles to the fummit of Etna. On fuch a journey, likewife, we have to pafs through three different climates; whereas to go from Naples to Vefuvius fhould be rather called an excurfion than a journey. We find alfo little difference between the temperature of the air at the bottom of this latter mountain, and that of its fummit. Notwithftanding thefe difficulties, however, the gigantic majefty of the Sicilian volcano, its fublime elevation, and the extenfive, varied, and grand profpects its fummit prefents, have induced the curious, in every age, to afcend and examine it; and not a few have tranfmitted to pofterity the obfervations they have made during their arduous journey.

Thefe examples would alone have ftrongly excited me to make the fame journey, and fimilar refearches; but I had alfo a ftill more powerful incentive in the undertaking in which I had engaged to travel through the Two Sicilies, in order to make obfervations on the volcanos, among which Etna muft principally claim my attention, as being the largeft and moft ftupendous of all that are, at prefent, in a ftate of conflagration on the furface of the globe. I was, likewife, induced to believe that, notwithftanding fo many journeys to this mountain have already appeared, I might ftill publifh mine; and that for feveral reafons. Firft, becaufe I flatter myfelf that I fhall be able to ftate fome obfervations which will be, in part at leaft, new to the reader; fecondly, becaufe I fhall thus have an opportunity to examine many things related by the travellers who have preceded me, which do not always appear to bear the ftamp of truth; and laftly, becaufe my remarks may furnifh fubjects for ufeful difcuffion.

I took my departure from Meffina for Catania, a diftance of fixty miles by fea, in a fmall veffel, coafting clofe upon the land all the way, to examine the fhore. On the firft of September I landed at the diftance of fifteen miles from Meffina, on a part of the fhore which forms there a head-land, where mariners are accuftomed fometimes to make a fhort ftay. The fhore here was entirely of calcareous earth, except fome pieces of fcattered detached lava. The latter production excited in me fome doubts whether the explofions of Etna had ever reached to fo great a diftance; but the mariners who were with me affured me, that thefe pieces of lava had been brought from the fhore of Catania by veffels who had taken them in as ballaft, and left them here when they had no farther occafion for them, in confequence of having taken in other lading. Of the truth of this account I was afterwards fatisfied, as I found this lava perfectly fimilar to that in the neighbourhood of Catania.

The real eruptions of this volcano begin firft to appear, in the form of rocks of different elevations, which overhang the fea, at the diftance of thirty-feven miles from Meffina, on the way to Catania; and at the fame diftance Etna is faintly feen to fmoke, and majeftically raifes its head above the other mountains of Sicily. We had a clear view of it, the fky being free from clouds; and I began to entertain a hope that I fhould be able to vifit its higheft fummit, fince it was not, as it frequently is, covered with fnow.

Before we arrived at Catania, I landed at feveral places, to examine the fhore, which is entirely formed of lava. I was particularly attentive to its courfe and changeable ftructure. The greater part of the lavas proceed in a right line from the body of Mount Etna, with various inclinations to the level of the fea; and many of them, having been broken by the violent fhocks of the waves, exhibit their various ftratification, and fhew the different epochs in which they have flowed, by the difference of their ftrata, and the coatings of vegetable earth more or lefs thick interfperfed between thofe ftrata.

All theſe lavas, at leaſt thoſe which I examined, are ſimilar with reſpect to their baſe, as they all derive their origin from the horn-ſtone, and all contain within them feltſpar-cryſtals.

I employed two days in this coaſting voyage from Meſſina to Catania. The materials of which the latter city is built are ſuch as might be expected in a volcanized country where ſtones of any other than a volcanic nature are not to be found but at a conſiderable diſtance. The edifices, both public and private, and even the walls of the city, are principally of lava; which has furniſhed materials not only for the modern Catania, but alſo for that more ancient city, which was entirely deſtroyed by an earthquake in the year 1693; at leaſt its ruins when dug up have all been found to conſiſt of lava. We learn likewiſe from obſervations anterior to that fatal period, that lava has been met with under its foundations on the occaſion of digging for wells *; nor is it poſſible for us to ſay to what depth the roots of the Etnean eruptions extend. If we only take a view of the ſurface of the territory of Catania, we every where meet with immenſe accumulations of lava, among which the moſt conſpicious are the remains of that torrent which poured from one of the ſides of Etna in 1669, inundated, with wide-ſpreading ruin, a ſpace of fourteen miles in length, and nearly four in breadth roſe over the walls of Catania, burying under it a part of the city and at length precipitated itſelf into the ſea.

It would be a ſuperfluous labour were I to proceed to give a long and minute deſcription of this torrent of lava, which has been already ſo amply deſcribed by Mr. Brydone †, Count Borch ‡, Sir William Hamilton §, and Riedeſel ‖; though I cannot ſay that the relations of four travellers, who repeat the ſame things after each other, were much wanted; ſince our illuſtrious countryman, the Italian Alphonſus Borelli, who was preſent at the time when this dreadful torrent of fire burſt forth, wrote a work expreſsly to deſcribe it ¶. It appears to me preferable to preſent the reader with the view, with ſome

* Borelli, ubi ſup. † Tour through Sicily. ‡ Lettres ſur la Sicile.
§ Campi Phlegræi. ‖ Travels in Sicily.

¶ Mr. Brydone is the only one of theſe travellers who mentions Borelli. He cites four obſervations from him; but perverts them, to give them more an air of the marvellous.

He ſays, firſt, that according to the teſtimony of Borelli, "after the moſt violent ſtruggles and ſhakings of the whole iſland, when the lava at laſt burſt through, it ſprang up into the air to the height of ſixty palms."

Mr. Brydone I hope will pardon me, when I tell him that Borelli, here, certainly, only ſpeaks of ſome local ſhocks, and tremblings of certain places in the vicinity of the volcano, and by no means of a ſhaking felt over the whole iſland. As for the lava ſpringing up into the air to the height of ſixty palms, there is not a word about it in the whole book.

Mr. Brydone, likewiſe, makes Borelli ſay, that "for many weeks the ſun did not appear, and the day ſeemed to be changed into night."

But all we find in Borelli's account, relative to this darkneſs, is, that "on the 8th of March, an hour before ſun-ſet, the air, in the ſuburb of Pidara, and ſome other neighbouring places, became ſomewhat thick and dark, with a darkneſs ſimilar to that which is cauſed by ſome partial eclipſes of the ſun."

The two other paſſages, which I omit for the ſake of brevity, are perverted.

Mr. Brydone, indeed, through his whole journey to Etna has ſufficiently ſhewn his attachment to the marvellous, and, where that has failed him, has had recourſe to the aid of his playful fancy to furniſh him with extravagant, though ingenious, inventions of the ridiculous kind. The ſtory of the veil of St. Agatha is an example; which veil, according to him, the people of Catania conſider as an infallible remedy againſt volcanos, but which at the time of a great eruption "ſeemed to have loſt its virtue; the torrent burſting over the walls, and ſweeping away the image of every ſaint that was placed there to oppoſe it." But would it not have been more commendable to have furniſhed his readers with real information, inſtead of filling ſo many pages with theſe trivial and inſipid pleaſantries? In fact, after having read his five letters on Etna, what idea do they enable us to form of the nature of this mountain?

I do

ſome improvement, which this celebrated phyſician of Naples cauſed to be taken on the ſpot at the time, and which in the moſt natural manner repreſents this river of fire, ſuch as it appeared at its beginning, during its progreſs, and at its end; it will likewiſe render much more intelligible ſeveral particulars of which I propoſe hereafter to treat.

Having mentioned theſe travellers, I ſhall make ſome obſervations on what has been ſaid by Count Borch relative to the changes that have taken place in the lava of 1669, and thoſe of ſome other eruptions preceding and poſterior to that time. Theſe changes conſiſt in the vegetable earth which begins to appear on them, generated in part from the de-compoſition of the lava, and in part from the deſtruction of the plants, which, after a certain time, are produced upon it. From the quantity of this earth he deduces a rule to judge of the age of the lava; which he endeavours to prove by examples of different Etnean lavas, of various epochs, which are covered with more or leſs of this earth in proportion as they are more or leſs ancient. Thus, a lava produced by an eruption in 1157, when he examined it in December 1776, had a coating of earth twelve inches thick; another which had flowed in 1329, had one of eight inches; on that of 1669, was found more than one inch; while the moſt recent, that of 1766, was entirely deſtitute of ſuch earth. Whence he concludes, that from the antiquity of the lavas, aſcertained by the quantity of earth with which they are covered, may be deduced the antiquity of the world.

As this argument is certainly ſomewhat ſpecious, and has been employed by others, it merits to be diſcuſſed. We undoubtedly know from repeated obſervations, that lavas, after a ſeries of years, are inveſted with a ſtratum of earth proper for vegetation; and the fact has already been proved in this work: nor can it be denied that this earth is originally produced by the decompoſition of the lavas, and that of the plants which have taken root upon it. The ſame may be obſerved in mountains not volcanized, the ſtones of which, (at leaſt very frequently,) being long expoſed to the action of the air and ſeaſons, are reſolved into an earth proper for the growth of vegetables. It would not, therefore, admit of a doubt that the more ancient lavas muſt afford a greater quantity of earth than thoſe of more recent date, were every exterior circumſtance equal; were they all of the ſame conſiſtence and qualities, and all equally affected by the fire. But how greatly they differ in theſe reſpects we have already ſeen, and ſhall ſee ſtill more in the progreſs of this work. Such differences, therefore, muſt render the argument of Count Borch extremely inconcluſive; ſince a lava of an earlier age may have much leſs earth than one of later date; a circumſtance which the Chevalier Gioeni told me he had frequently obſerved in ſeveral of the lavas of Etna.

Among the lavas adduced by Count Borch, in favour of his hypotheſis, is that which flowed in 1329, which when he examined it, that is four hundred and forty-ſeven years after its eruption, was covered with eight inches of earth. Yet the lava of the Arſo, in Iſchia, which ruſhed into the ſea in 1302, when I ſaw it in 1788, ſtill preſerved in every part its hardneſs and ſterility †.

It appears, likewiſe, extraordinary, that this writer ſhould not have noticed the remains of another current of lava near Catania, which has been employed for two thouſand

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I do not mean, by what I have ſaid, indiſcriminately to condemn the whole work of Mr. Brydone. His Tour frequently contains facts and obſervations well deſerving attention. It is elegantly written, and the author was well acquainted with the ſecret of exciting our curioſity, and rendering his narrative intereſting; though frequently, with that kind of intereſt which ſeems more ſuitable to romance than to authentic hiſtory.

† Chap. V.

years as materials for buildings, and which retains ſuch hardneſs, that where the labour of the cultivator has not been exerted it ſtill continues entirely ſterile.

With reſpect to the lava of 1669, I cannot conceive how the Count could attribute to it an inch or more of earth, ſince it is entirely deſtitute of it. Were this the fact, the ſurface of the lava muſt at leaſt, in ſome few places, exhibit ſome blades of graſs, or ſmall plants, as a ſtratum of earth an inch thick would be ſufficient to nouriſh them; but we find it, on the contrary, deſtitute of every vegetable, except a few lichens, which we know will take root and grow on the hardeſt bodies, and ſuch as entirely reſiſt all effect of the air, as quartzes, and even on the ſmooth and ſlippery ſurface of vitreous ſubſtances. The Count, very poſſibly, examined this lava in low hollow places, into which the rain-water had drained, and brought down with it ſome particles of earth, that might have formed a thin ſtratum *.

Before I travelled into Sicily, I had read the eulogium beſtowed on the Prince of Biſcaris, by Count Borch, among other reaſons, becauſe he had exerted himſelf in attempts to change the face of the lava of 1669, and transform the ungrateful ſoil into a fruitful garden. When I arrived in the iſland, I admired the effect of human art. In many places the hardeſt lava had been opened by the force of mines; while in others it had been broken into extremely minute fragments, into which, when collected in certain receptacles, ſeveral kinds of uſeful plants had been inſerted: but, unfortunately, they always periſhed, though they were repeatedly planted. Some few I found living, as here and there a pomegranate or an almond tree; but theſe were extremely weak and languid, though the broken lava among which they had taken root was mixed with vegetable earth. A ſpecies of the Indian fig † alone throve and flouriſhed; but it is well known that this ſhrub delights in lavas, and that it will take root, grow to a conſiderable height, and bear fruit plentifully, on the moſt ſterile. In the courſe of this work I ſhall have occaſion to treat more at length on this ſubject. At preſent there only remains a large pond which has been dug in the lava of a conſiderable depth, and communicating with the water of the ſea, in which are preſerved different kinds of fiſh.

After having, for a conſiderable time, examined the environs of Catania, aſſiſted by the Chevalier Gioeni, to whom I owe the moſt lively and ſincere gratitude for numerous favours, I ſet out for Mount Etna, on the morning of the 3d of September, accompanied, among others, by Carmelo Puglieſi, and Dominico Mazzagaglia, two guides extremely well acquainted with the roads. I performed the greater part of the journey on foot, only riding when I found myſelf fatigued. I think it ſcarcely neceſſary to mention, what has been ſo often repeated by travellers, and therefore muſt be ſo well known, that the lower region of Mount Etna, which extends through twelve miles of the aſcent towards the ſummit, is incredibly abundant in paſtures and fruit trees of every kind ‡.

It is well known that this fertility is to be aſcribed to the lava, which, ſoftened by length of time, has produced a moſt fertile ſoil, thus compenſating paſt calamity by pre-

* With reſpect to the uncertainty and fallacy of any calculations deduced from the greater or leſs quantity of vegetable earth which may cover lavas, the reader may conſult the work of M. Dolomieu above cited.

† Cactus opuntia. Linn.

‡ The fertility of this region has been celebrated by the greater part of thoſe authors who have written concerning Etna; among which the moſt diſtinguiſhed are Strabo, and Fazello, but above all Peter Bembo, who, after having viſited the mountain, compoſed an ingenious dialogue on the ſubject. It may excite ſome ſurpriſe, that, after ſo many deſcriptions of this region, and after Borelli, above a century before, had thought ſuch a deſcription ſuperfluous, Mr. Brydone ſhould imagine it worth while once more to recount the prodigies of this fertile ſoil.

ſent fruitfulneſs. To this, however, the induſtry of man and arts of agriculture have not a little contributed; as well as the corruption and decompoſition of vegetables, which have ſo great a ſhare in the fructification of the earth. Theſe lavas, however, in ſome places, ſtill manifeſt their native wildneſs, riſing above the uſeful ſoil, in craggy points and tumours, or diſcovering their naked ſides on the banks of rapid torrents. On ſome declivities, where the earth has but little depth, we find trees, the roots of which not having been able to penetrate the unyielding lava, have turned aſide, and extended horizontally along the ſurface of the ſoil. Whence it evidently appears that the fertility of the inferior region depends entirely on a cruſt of earth, more or leſs thick, without which the ſame barrenneſs muſt take place, which, it cannot be doubted, once prevailed.

At ten in the morning, I arrived at the village of Nicoloſi, (Plate I.) near Monte Roſſo, which formerly was a plain, when in 1669, a new vortex opened, and diſgorged a dreadful torrent of lava, which poured headlong down until it reached the ſea, where it formed a kind of promontory (Y). It would have been a great omiſſion not to have viſited this mountain, though it lies a little out of the direct road to Etna. Beſides the memorable eruption which has been mentioned more than once, other objects relative to it, which I had here an opportunity of examining on the ſpot, attracted my attention. Among theſe was that quantity of black ſand which was thrown out in that eruption from the new volcanic mouth, which ſtill remains, and covers an extenſive plain beyond Nicoloſi, where once verdant trees flouriſhed; ſome of which ſtill preſerve remains of life, and raiſe their leafy branches above the changing ſand. This ſand, which covers a circuit of two miles round Monte Roſſo, when it was firſt ejected from the vortex, extended over a ſpace of fifteen miles; and covered the ground to ſuch a height, that the vines and ſhrubs were entirely buried. Some of the finer particles of it were carried by the ſoutherly wind even to Calabria, where they fell thick in many places, as we are informed by Borelli.

As I approached the Mountain, I found the depth of the ſand greater, and it became a conſiderable impediment in my way, as my leg frequently ſank into it up to the knee. It is well known that this mountain is forked, being ſo formed by the eruption, at which time it was called by the country people, Monte della Ruina (the Mountain of Ruin), and afterwards Monte Roſſo (the Red Mountain), probably becauſe ſome parts of it appeared of that colour. Borelli tells us, that its circumference at the baſe does not exceed two miles, and that its perpendicular height is not more than one hundred and fifty paces; while Sir William Hamilton eſtimates its height at a mile, and its circuit at leaſt at three. From the obſervations I have been able to make, I muſt prefer the eſtimate of the Italian mathematician to that of Sir William.

The accurate accounts of the ſame Borelli inform us, that the gulf whence this eruption iſſued opened on the 11th of March, 1669, about the time of the ſetting of the ſun; that the lava burſt forth that ſame night; and that, on the 13th of the ſame month, a ſhower of ſcoriæ and ſand began to be caſt into the air, which continued three months, and formed Monte Roſſo. From among a hundred or more mountains which rear their heads on the ſides of Mount Etna, this is the only one with the hiſtory of the formation of which we are acquainted *.

* Sir William Hamilton, in his journey to Etna, ſpeaking of this eruption, cites an account of it by the Earl of Winchelſea, who was preſent at the time, but which is more marvellous than true. He did not approach the place, but only beheld the eruption from the towers of Catania. He tells us, that the fire divided one mountain into two; and that it was compoſed, as were the ſtones and aſhes vomited out (beſides other principles), of mercury, lead, bronze, and every other kind of metal, which alone would be ſufficient to deprive this account of all credit.

On

On examining this bifurcated mountain at the top, on the ſides, and at the bottom, eſpecially in thoſe places where the rain-waters had produced furrows and deep excavations, I found it compoſed of different ſcoriæ and ſand, that is to ſay, lava that had undergone various modifications, and from that ſame lava which has formed the immenſe current, as ſufficiently appears from the identity of their principles. The baſe of this lava is the horn-ſtone: it is of a grey colour, dry in its fractures, rough to the touch, of a grain moderately fine, gives ſparks with ſteel, and ſounds when ſtruck. It ſerves as a matrix to a great number of felt-ſpathoſe and ſhoerlaceous cryſtallizations *. If from this lava we turn our eyes to ſcoriæ, of which Monte Roſſo is principally compoſed, we obſerve the ſame kind of baſe, containing, in like manner, ſhoerls and felt-ſpars; except only that the ſcoriæ have more lightneſs and friability, from their greater number of pores, which gives them the reſemblance of certain ſponges; beſides that they have a kind of vitreous appearance, and that the pieces on the ſurface are ſcabrous; differences which ariſe from the ſcoriæ having been more changed than the lavas by the activity of the fire, and that of the elaſtic gaſes.

When the volcano threw up a deluge of ſcoriæ, a great number of them muſt claſh, be broken, and reduced to powder; thus producing ſhowers of ſand: whence the ſand that covers the environs of Monte Roſſo, which, from the examinations I have made, I find to conſiſt only of triturated ſcoriæ. The lava of Monte Roſſo, the ſcoriæ, and the ſand conſiſt, therefore, of the ſame component parts.

M. Dolomieu having found, at Monte Roſſo, great numbers of detached ſhoerls, of the ſame kind with thoſe which enter into the lava of that current; that is to ſay, black, lamellated, flat, of a hexaedrous priſmatic form, and, for the moſt part, terminated by a dihedrous pyramid, he thought, with apparent reaſon, that they at firſt entered into the body of the lava; he therefore endeavoured to explain in what manner they were ſeparated from it; having recourſe to the ſulphur, which, according to him, had ſcorified the lava, but had not been able to produce the ſame effect on the ſhoerls, from the ſmall quantity of iron they contain, which, conſequently, remained free and detached.

It is incredible how great a number of theſe looſe ſhoerls are to be met with about Monte Roſſo, and particularly on its top. When I was there, the ſun ſhining clear, I ſaw them, in ſeveral places, ſparkling on the ground, and I had only ſlightly to move the ſcoriæ and ſand, to bring them to light by hundreds. They were exactly ſuch as they are deſcribed by the French naturaliſt. I formed a deſign to aſcertain the truth of the theory by which he has endeavoured to explain the ſeparation of the ſhoerls from the lava, and when I returned to Pavia I made ſeveral experiments for that purpoſe. As his hypotheſis was that it proceeded from the ſhoerls containing a leſs quantity of iron than the lava, it was to be expected that the magnetic needle would be leſs affected by the former than the latter. From the experiments I made both with the lava, or more properly ſpeaking, its baſe, and with the detached ſhoerls, I perceived that the needle was attracted by the former at the diſtance of one fourth, one third, and even one half of a line, while the attractive force of the detached ſhoerls acted on it at the diſtance of one fourth of a line, one third of a line, and a whole line; one ſhoerl even gave manifeſt ſigns of attraction at the diſtance of a line and a half. It is ſcarcely neceſſary to remark, that in ſuch experiments every acceſſary circumſtance ought to be equal; that is, the pieces of lava ought to be equal in ſize, and of the ſame configuration with the

* I have given a brief deſcription of this lava, as, in the preſent caſe, it ſeemed neceſſary; but, in future, I do not propoſe to deſcribe the lavas and other productions of Etna; both becauſe a month would not have been ſufficient to have made a proper examination of them all, much leſs the ſhort time I was able to employ in this journey, and becauſe M. Dolomieu has already undertaken to give this deſcription.

detached ſhoerls. Theſe experiments prevented my adopting the theory in queſtion, ſince they ſhewed that the martial principle was much more abundant in the ſhoerls than in their baſe; contrary to the hypotheſis of M. Dolomieu. Reflecting, however, on the phenomenon of the iſolated ſhoerls, another mode of explanation occurred to me, which I ſhall here ſubmit to the judgment of the learned reader.

Experience has ſhewn that the volcanic fire which melted the lava was incapable of melting the ſhoerls, as they are found within it as completely cryſtallized, with angles as acute, and of the ſame luſtre, as thoſe which are detached among the ſand and ſcoriæ. As they are therefore ſo refractory to the fire, and are, beſides, of a different ſpecific gravity from the lava, it may reaſonably be ſuppoſed that, when the latter was melted, and in the eruption of 1669, forced by elaſtic vapours to a prodigious height, where it was ſeparated into ſmall particles, numbers of ſhoerls were detached from it, and fell, iſolated, partly within the crater, and partly around it. As theſe ſhowers of fiery lava continued three months, the number of ſhoerls which thus fell detached muſt have been very conſiderable, as we, in fact, find them at preſent.

The reſults produced by the furnace on theſe ſhoerls when detached, are very different from thoſe they exhibit when incorporated with the lava. In the former caſe they are infuſible, though they ſhould remain there ſeveral days. When minutely triturated, indeed, their particles will conglutinate together, but without forming a compact and vitreous body. The fuſion, on the contrary, is perfect in thoſe which are enveloped in the body of the lava. Monte Roſſo, quite to the ſea, abounds in ſuch ſhoerls. A few hours in the furnace are ſufficient to change them into a ſhining, compact, and extremely hard enamel. Some lineament of the feltſpars contained in the lava always remains; but it is impoſſible to diſcover any traces of the ſhoerls, they having formed, with their baſe, which has paſſed into the ſtate of enamel, a ſimilar and homogeneous body. The baſe of this lava, which, as we have ſaid, is of horn-ſtone, has therefore acted as a flux on the ſhoerls.

This experiment throws light on another ſubject of ſome importance, already mentioned in Chap. V. which treats of Iſchia; where ſpeaking of the fuſion obtained in the furnace of ſome feltſpars, though detached, of ſome of the lavas of that iſland, I obſerved that it is not always true that the feltſpars are more difficult to fuſe than ſhoerls, as is generally imagined. I then alluded to what is here detailed, though this is not the only place where that truth will be proved.

I ſhall make another remark or two on theſe ſhoerls. They do not belong, excluſively, to this lava of Monte Roſſo, but are found in many others of Mount Etna.

I do not know that any attempt has been hitherto made to analyſe them chemically. I therefore undertook to aſcertain their component principles by the proceſs with aſbeſtine earth invented by Bergman. From one hundred docimaſtic pounds of theſe ſhoerls I obtained the following reſult:

	Pounds.
Silex	34·5
Lime	18.7
Iron	7.6
Alum	12.4
Magneſia	11.0
Sum	85.2 *

* It muſt be remarked, that beſides the almoſt irreparable loſs in manipulation, and that of the water pre-exiſting in the ſhoerls, the lime is here deprived of the acid with which it was before combined.

Monte

Monte Roſſo (the Red Mountain), as we have already ſaid, has received this name from ſome parts of it being tinged with that colour, though there are others which are white, and others yellow. All theſe parts of it are found to be more or leſs decompoſed, and, in general, they are only ſcoriæ. It ſeems indubitable that theſe colours are produced by iron, changed or modified by acids.

Some of theſe ſcoriæ, which have not been affected by the action of the acids, exhibit a remarkable phenomenon. They are covered with a thin coat of pellucid glaſs, and ſeem as if a ſheet of water had flowed over them and been ſuddenly frozen. This appearance, which in the neighbourhood of any other volcano would not merit a moment's regard, is remarkable at Etna, becauſe we there meet with no vitrifications; M. Dolomieu, whoſe induſtry and accuracy are ſo great in all his reſearches, having found only one piece, and that of uncertain origin.

This vitreous integument has very probably been occaſioned by a more energetic action of the fire.

After I had ſtaid ſome time at Monte Roſſo, equally to my inſtruction and amuſement, and had viewed with admiration the trunk and branches of that extenſive river of lava, which iſſuing from the root of the mountain, and inundating an immenſe tract of country, had ruſhed into the ſea, I took my way towards the monaſtery of St. Niccolo dell' Arena, a pleaſing reſting-place for travellers who viſit Etna, where I arrived about noon on the 3d of September. This very ancient edifice, founded on the lava, was the habitation of a number of Benedictine monks, who about two hundred years ago, in conſequence of the devaſtation occaſioned by the lava, were obliged to abandon it, and retire to Catania. The injuries it has at different times ſuffered are recorded in various inſcriptions ſtill remaining, which commemorate ruinous earthquakes, torrents of lava, and ſhowers of ſand and aſhes, by which it has been damaged and almoſt deſtroyed; with the dates of the different repairs. The environs of this place would ſtill be entirely covered with the black ſand thrown up by Monte Roſſo in 1669, were it not that this ſand becomes more eaſily changed into vegetable earth than the lava; and, for many years, has been planted with more than one extenſive vineyard. After taking a ſlight refreſhment in this hoſpitable place, I continued my journey towards the ſummit of Etna, proceeding over ancient lavas, which were ſtill every where unproductive of any kind of vegetable.

About three miles above San Niccolo dell'Arena, the lower region of Etna ends, and the middle begins, which extends for ten miles, or nearly that diſtance, in a direct line, up the mountain. It is, with great propriety, called *ſelvoſa*, or the woody region; ſince it abounds with aged oaks, beeches, firs, and pines. The ſoil of this region is a vegetable earth, generated by the decompoſition of the lavas, and ſimilar to that in the lower region; which lavas may not only every where be found on digging a little depth into the ground, but diſplay themſelves uncovered in many places, as we have already remarked of the lavas of the other region. The middle region is celebrated for its luxuriant vegetation and its lofty trees; but it appeared to me ſcarcely to deſerve this celebrity. The trees (at leaſt in the places where I noticed them), and eſpecially the oaks, which form the greateſt part of this woody zone, are low, and as I may ſay ſtinted in their growth; and would loſe much when compared with thoſe of other countries. The beeches, which grow only on the upper extremity of the zone, would appear mere pigmies, if placed beſide thoſe which rear their lofty heads on the Apennines and the Alps. This, I am of opinion, is to be attributed to the little depth of the earth proper for vegetation. The woods and verdure of theſe two regions, the inferior and the middle, are recorded by the greater part of the writers of antiquity; ſo that the commence-

ment of this vegetation appears to be loſt in the obſcurity of time. How much more ancient then, muſt have been the date of the flowing of thoſe lavas to the flow decompoſition of which the vegetation owes its origin!

Before the day cloſed, I reached the celebrated Grotta delle Capre, but it only afforded us a wretched couch of leaves and ſtraw. It is, however, the only place where the traveller can reſt who wiſhes early in the morning to reach the top of Etna, which is eight miles diſtant. It is one of thoſe caverns which we frequently meet with in the middle of the lavas of that immenſe mountain; and a little higher begins the laſt and ſublime region. Here I ſtopped to paſs the night; but, before I endeavoured to compoſe myſelf to ſleep, I found it very agreeable to warm myſelf by a fire made with ſome branches cut from the neighbouring trees; as, at this height, Reaumur's thermometer ſtood at 8½ degrees above the freezing point (51° of Fahrenheit); while in the morning of the ſame day, at Catania, it had been at 23° (72 of Fahrenheit). Caſting my eye around the grotto, I perceived the names of ſeveral travellers; ſome of them names of eminence, with the dates when they had been here, cut on the trunks of ſeveral of the oaks; but I muſt confeſs that I felt ſome little indignation on remarking that among all theſe there was not one Italian name.

I ſhall conclude this chapter with ſome remarks relative to an object that has not, to my knowledge, been attended to by any other traveller. We have been told that the grotto is called La Grotta delle Capre (the grotto of the goats) becauſe goats are uſed to be ſhut in it, in rainy weather; that it is hollowed in the lava in the ſhape of a furnace; that it is ſurrounded with ancient and venerable oaks; that leaves, there, compoſe the beds of travellers; but no one has yet deſcribed the qualities of the lava of which it is formed. Without pretending perfectly to ſupply this omiſſion, I ſhall ſay that the lava here is of a horn-ſtone baſe; that it is of an earthy texture; and that, though it abounds with pores and vacuities, it has conſiderable hardneſs, it contains ſome ſhoerls, and likewiſe two kinds of feltſpars; ſome of a flat figure, which are extremely brilliant in the fractures; the others of an irregular ſhape, with little luſtre, and which manifeſt a degree of calcination, though without any indication of fuſion. A few other thin ſmall ſtones are interſperſed in them, which from their hardneſs and green colour I incline to think are chryſolites; as it is known that theſe noble ſtones are found in many of the lavas of Etna.

This lava in the furnace is transformed into an enamel full of bubbles; and as it then changes to a blacker colour, the white feltſpars become more conſpicuous. The magnetic needle is acted upon by it at the diſtance of a line and a half. The other lavas of the vicinity do not differ from that of the Grotta delle Capre, or rather they are a continuation of the ſame, even where they are covered by a ſtratum of earth and a multitude of trees. It is therefore evident, that this grotto has been formed from time immemorial; and that it is not the work of the rain-water, but has been produced by the action of the elaſtic gaſes of the lavas when they were fluid, which have generated in them this hollow place, as they have elſewhere many others, of which we may have occaſion hereafter to treat.

CHAP.

CHAP. VIII.—CONTINUATION OF THE JOURNEY TO ETNA.

Upper region of Etna—deſtitute of vegetables.—Its lavas.—View of the riſing ſun from thoſe heights.—Lavas which iſſued from the principal crater of Etna in the months of July and October 1787.—Difficulty of croſſing thoſe lavas to arrive at the ſummit of Etna.—After burning eleven months and more, ſome places not yet extinguiſhed.—Other difficulties.—Arrival at the top of Etna.—Clear view of the great crater, circumference of the great crater, with other particulars.—Etna a bifurcated mountain.—Another ſmaller crater.—Obſtacles uſually met with in a journey to Mount Etna.—Compariſon of what the author obſerved within the crater of Mount Etna, with the obſervations before made by M. Reideſel, Sir William Hamilton Bryſone, and Borch.—Phyſical cauſes of the changes in volcanic craters.—Ancient accounts of theſe changes.—Large maſſes have ſometimes fallen from the top of Etna into the crater.—No ſenſible diminution of the height of this mountain in the times of which we have any account.—Various phenomena obſervable in the ſmoke which at different times has exhaled from the Etnean furnace.—No inconvenience experienced by the author from the thinneſs of the air on the top of Etna.—The effect of this different on different individuals.—Extenſive and admirable proſpect from the ſummit of Etna.

THREE hours before day I, with my companions, left the Grotta delle Capre, which had afforded us a welcome aſylum, though our bed was not of the ſofteſt, as it conſiſted only of a few oak leaves ſcattered over the floor of lava. I continued my journey towards the ſummit of Etna; and the clearneſs of the ſky induced me to hope that it would continue the ſame during the approaching day, that I might enjoy the extenſive and ſublime proſpect from the top of this lofty mountain, which is uſually involved in clouds. I ſoon left the middle region, and entered the upper one, which is entirely deſtitute of vegetation, except a few buſhes very thinly ſcattered. The light of ſeveral torches which were carried before us enabled me to obſerve the nature of the ground over which we paſſed, and to aſcertain, from ſuch experiments as I was able to make, that our road lay over lavas either perfectly the ſame with, or analogous to, thoſe in which the Grotta delle Capre is hollowed.

We had arrived at within about four miles of the borders of the great crater, when the dawn of day began to diſperſe the darkneſs of night. Faint gleams of a whitiſh light were ſucceeded by the ruddy hues of aurora; and ſoon after the ſun roſe above the horizon, turbid at firſt and dimmed by miſts, but his rays inſenſibly became more clear and reſplendent. Theſe gradations of the riſing day are no where to be viewed with ſuch preciſion and delight, as from the lofty height we had reached, which was not far from the moſt elevated point of Etna. Here likewiſe I began to perceive the effects of the eruption of Etna which took place in July 1787, and which has been ſo accurately deſcribed by the Chevalier Gioeni *. Theſe were viſible in a coating of black ſcoriæ, at firſt thin, but which became gradually thicker as I approached the ſummit of the mountain, till it compoſed a ſtratum of ſeveral palms in thickneſs. Over theſe ſcoriæ I was obliged to proceed, not without conſiderable difficulty and fatigue, as my leg at every ſtep ſank deep into it. The figure of theſe ſcoriæ, the ſmalleſt of which are about a line or ſomewhat leſs in diameter, is very irregular. Externally they have

* His account of this eruption was printed at Catania in 1787. There is likewiſe a French tranſlation at the end of the *Catalogue Raiſonné* of M. Dolomieu.

the appearance of ſcoriæ of iron; and when broken, are found full of ſmall cavities, which are almoſt all ſpherical, or nearly of that figure. They are therefore light and friable; two qualities which are almoſt always inſeparable from ſcoriæ. This great number of cavities is an evident proof of the quantity and vigorous action of the elaſtic fluids, which in this eruption, impriſoned in the liquid matter within the crater, dilated it on every ſide, ſeeking to extricate themſelves; and forced it, in ſcoriaceous particles, to various heights and diſtances, according to the reſpective weights of thoſe particles. The moſt attentive eye cannot diſcover in them the ſmalleſt ſhoerl; either becauſe theſe ſtones have been perfectly fuſed, and with the lava paſſed into one homogeneous conſiſtence, or becauſe they never exiſted in it. Some linear feltſpars are however found, which by their ſplendour, ſemi-tranſparency, and ſolidity, ſhew that they have ſuffered no injury from the fire. When theſe ſcoriæ are pulverized, they become extremely black; but retain the dryneſs and ſcabrous contexture which they had when entire. They abound in iron, and in conſequence the duſt produced by pulverizing them copiouſly adheres to the point of a magnetized knife; and a ſmall piece of theſe ſcoriæ will put the magnetic needle in motion at the diſtance of two lines.

In the midſt of this immenſe quantity of ſcoriæ, I in ſeveral places met with ſome ſubſtances of a ſpherical figure, which, like the lava, were at firſt ſmall, but increaſed in ſize as I approached the ſummit of the mountain. Theſe were originally particles of lava ejected from the crater in the eruption before mentioned, which aſſumed a ſpherical figure when they were congealed by the coldneſs of the air. On examining them, I found them in their qualities perfectly to reſemble the ſcoriæ, and to poſſeſs the ſame magnetiſm.

Only two miles and a half remained of our journey, when the great laboratory of nature, incloſed within the abyſſes of Etna, began its aſtoniſhing operations. Two white columns of ſmoke aroſe from its ſummit; one, which was the ſmalleſt, towards the north-eaſt ſide of the mountain, and the other towards the north-weſt. A light wind blowing from the eaſt, they both made a curve towards the weſt, gradually dilating, until they diſappeared in the wide expanſe of air. Several ſtreams of ſmoke, which aroſe lower down towards the weſt, followed the two columns. Theſe appearances could not but tend to inſpire me with new ardour to proſecute my journey, that I might diſcover and admire the ſecrets of this ſtupendous volcano. The ſun likewiſe ſhining in all his ſplendour, ſeemed to promiſe that this day ſhould crown my wiſhes. But experience taught me that the two miles and a half I had yet to go preſented many more obſtacles than I could have imagined, and that nothing but the reſolution I had formed to complete my deſign at every hazard could have enabled me to ſurmount them.

Having proceeded about an hundred paces further, I met with a torrent of lava, which I was obliged to croſs to arrive at the ſmoking ſummit. My guides informed me that this lava had iſſued from the mountain in October 1787; and as the account of the Chevalier Gioeni, which I have above cited, only mentions the eruption of the month of July of the ſame year, I ſhall here give a brief deſcription of it, as it does not ſeem hitherto to have been deſcribed.

This very recent lava extends three miles in length; its breadth is various, in ſome places being about a quarter of a mile, in others one-third, and in others ſtill more. Its height, or rather depth, is different in different parts; the greateſt being, as far as I was able to obſerve, about eighteen feet, and the leaſt ſix. Its courſe is down the weſt ſide of the mountain; and, like the other lava which flowed in the July of 1787, it iſſued immediately from the great crater of Etna. The whole number of the eruptions

of

of this mountain of which we have any record, before and after the Chriſtian æra, is thirty-one; and ten only, as we are informed by Gioeni, including that of which he has given an account, have iſſued immediately from the higheſt crater. That which I obſerved may be the eleventh, unleſs it ſhould rather be conſidered as the ſame with that deſcribed by the Sicilian naturaliſt, ſince the interval between Auguſt and October is a very ſhort intermiſſion of reſt for a volcano. The cauſe of the rarity of the eruptions which iſſue immediately from the crater, compared with thoſe which diſgorge from the ſides, ſeems eaſily to be aſſigned. The centre of this volcano is probably at a great depth, and perhaps on a level with the ſea. It is therefore much more eaſy for the matter liquefied by the fire, put in effervescence by the elaſtic fluids, and impelled on every ſide from the centre to the circumference, to force its way through one of the ſides of the mountain where it finds leaſt reſiſtance, and there form a current, than to be thrown up, notwithſtanding the reſiſtance of gravity, from the bottom to ſo great a height as the higheſt crater of Etna. It is evident, therefore, that the effervescence in the eruptions of the months of July and October 1787 was extremely violent. The torrent of the month of October is every where covered with ſcoriæ, which reſemble thoſe ejected in the month of July in their black colour, but differ from them in the great adheſion they have to the lava, in their exterior vitreous appearance, their greater weight, and their hardneſs, which is ſo great that they give ſparks with ſteel almoſt as plentifully as flints. Theſe differences, however, are to be attributed only to accidental combinations of the ſame ſubſtance; the conſtituent principles of the ſcoriæ of this lava not being different from thoſe of the detached ſcoriæ mentioned above. Both likewiſe contain the ſame feltſpar lamellæ.

This new current was however extremely difficult, and even dangerous, in the paſſage. In ſome places the ſcoriæ projected in prominent angles and points, and in others ſunk in hollows, or ſteep declivities; in ſome, from their fragility and ſmoothneſs, they reſembled thin plates of ice, and in others they preſented vertical and ſharp projections. In addition to theſe difficulties, my guides informed me I ſhould have to paſs three places where the lava was ſtill red-hot, though it was now eleven months ſince it had ceaſed to flow. Theſe obſtacles, however, could not overcome my reſolution to ſurmount them, and I then experienced, as I have frequently done at other times, how much may be effected, in difficulties and dangers like theſe, by mere phyſical courage, by the aſſiſtance of which we may proceed along the edge of a precipice in ſafety; while the adventurer who ſuffers himſelf to be ſurpriſed by a panic fear will be induced cowardly to deſiſt from the enterprize he might have completed. In ſeveral places, it is true, the ſcoriæ broke under my feet; and in others I ſlipped, and had nearly fallen into cavities from which I ſhould have been with difficulty extricated. One of the three places pointed out by the guides had likewiſe, from its extreme heat, proved highly diſagreeable; yet at length I ſurmounted all theſe obſtacles and reached the oppoſite ſide, not without making ſeveral curſory obſervations on the places whence thoſe heats originated. Two large clefts, or apertures, in different places appeared in the lava, which there, notwithſtanding the clearneſs of the day, had an obſcure redneſs; and on applying the end of the ſtaff which I uſed as a ſupport in this difficult journey to one of theſe, it preſently ſmoked, and immediately after took fire. It was therefore indubitable that this heap of ejected lava ſtill contained within it the active remains of fire, which were more manifeſt there than in other places, becauſe thoſe matters were there collected in greater quantities.

I had yet to encounter other obſtacles. I had to paſs that tract which may properly be called the cone of Etna, and which, in a right line, is about a mile or ſomewhat more

in length. This was extremely ſteep, and not leſs rugged, from the accumulated ſcoriæ which had been heaped upon it in the laſt eruption, the pieces of which were neither connected together, nor attached to the ground; ſo that frequently, when I ſtepped upon one of them, before I could advance my other foot, it gave way, and forcing other pieces before it down the ſteep declivity, carried me with it, compelling me to take many ſteps backwards inſtead of one forwards. To add to this inconvenience, the larger pieces of ſcoriæ above that on which I had ſtepped, being deprived of the ſupport of thoſe contiguous to them, came rolling down upon me, not without danger of violently bruiſing my feet, or breaking my legs. After ſeveral ineffectual attempts to proceed, I found the only method to avoid this inconvenience, and continue my journey, was to ſtep only on thoſe larger pieces of ſcoriæ which, on account of their weight, remained firm; but the length of the way was thus more than doubled, by the circuitous windings it was neceſſary to make to find ſuch pieces of ſcoriæ as from their large ſize were capable of affording a ſtable ſupport. I employed three hours in paſſing, or rather dragging myſelf, to the top of the mountain, partly from being unable to proceed in a right line, and partly from the ſteepneſs of the declivity, which obliged me to climb with my hands and feet, ſweating and breathleſs, and under the neceſſity of ſtopping at intervals to reſt, and recover my ſtrength. How much did I then envy the good fortune of thoſe who had viſited Etna before the eruption of 1787, when, as my guides aſſured me, the journey was far leſs difficult and laborious!

I was not more than a hundred and fifty paces diſtant from the vortex of the cone, and already beheld cloſe to me, in all their majeſty, the two columns of ſmoke. Anxious to reach the borders of the ſtupendous gulf, I ſummoned the little ſtrength I had remaining to make a laſt effort, when an unforeſeen obſtacle for a moment cruelly retarded the completion of my ardent wiſhes. The volcanic craters, which are ſtill burning more or leſs, are uſually ſurrounded with hot ſulphureous acid ſteams, which iſſue from their ſides, and riſe in the air. From theſe the ſummit of Etna is not exempt; but the largeſt of them roſe to the weſt, and I was on the ſouth-eaſt ſide. Here likewiſe four or five ſtreams of ſmoke aroſe from a part ſomewhat lower, and through theſe it was neceſſary to paſs; ſince on one ſide was a dreadful precipice, and on the other ſo ſteep a declivity, that I and my companion, from weakneſs and fatigue, were unable to aſcend it; and it was with the utmoſt difficulty that our two guides made their way up it, notwithſtanding they were ſo much accuſtomed to ſuch laborious expeditions. We continued our journey, therefore, through the midſt of the vapours; but though we ran as faſt as the ground and our ſtrength would permit, the ſulphureous ſteams with which they were loaded were extremely offenſive and prejudicial to reſpiration, and affected me in particular ſo much, that for ſome moments I was deprived of ſenſe; and found by experience how dangerous an undertaking it is to viſit volcanic regions infeſted by ſuch vapours.

Having paſſed this place, and recovered by degrees my former preſence of mind, in leſs than an hour I arrived at the utmoſt ſummit of Etna, and began to diſcover the edges of the crater; when our guides, who had preceded me at ſome diſtance, turned back, and haſtening towards me, exclaimed in a kind of tranſport, that I never could have arrived at a more proper time to diſcover and obſerve the internal part of this ſtupendous volcano. The reader will eaſily conceive, without my attempting to deſcribe it, how great a pleaſure I felt at finding my labours and fatigue at length crowned with ſuch complete ſucceſs. This pleaſure was exalted to a kind of rapture when I had completely reached the ſpot, and perceived that I might without danger contemplate this amazing ſpectacle. I ſat down near the edge of the crater, and remained there two

hours, to recover my ſtrength after the fatigues I had undergone in my journey. I viewed with aſtoniſhment the configuration of the borders, the internal ſides, the form of its immenſe cavern, its bottom, an aperture which appeared in it, the melted matter which boiled within, and the ſmoke which aſcended from it. The whole of this ſtupendous ſcene was diſtinctly diſplayed before me; and I ſhall now proceed to give ſome deſcription of it, though it will only be poſſible to preſent the reader with a very feeble image, as the ſight alone can enable him to form ideas at all adequate to objects ſo grand and aſtoniſhing.

The upper edges of the crater, to judge by the eye, are about a mile and a half in circuit, and form an oval, the longeſt diameter of which extends from eaſt to weſt. As they are in ſeveral places broken, and crumbled away in large fragments, they appear as it were indented, and theſe indentations are a kind of enormous ſteps, formed of projecting lavas and ſcoriæ. The internal ſides of the cavern, or crater, are inclined in different angles in different places. To the weſt their declivity is ſlight: they are more ſteep to the north; ſtill more ſo to the eaſt; and to the ſouth-eaſt, on which ſide I was, they are almoſt perpendicular. Notwithſtanding this irregularity, however, they form a kind of funnel, large at the top, and narrow at the bottom, as we uſually obſerve in other craters. The ſides appear irregularly rugged, and abound with concretions of an orange colour, which at firſt I took for ſulphur, but afterwards found to be the muriate of ammoniac, having been able to gather ſome pieces of it from the edges of the gulf. The bottom is nearly a horizontal plane, about two-thirds of a mile in circumference. It appears ſtriped with yellow, probably from the above-mentioned ſalt. In this plain, from the place where I ſtood, a circular aperture was viſible, apparently about five poles in diameter, from which iſſued the larger column of ſmoke, which I had ſeen before I arrived at the ſummit of Etna. I ſhall not mention ſeveral ſtreams of ſmoke, which aroſe like thin clouds from the ſame bottom, and different places in the ſides. The principal column, which at its origin might be about twenty feet in diameter, aſcended rapidly in a perpendicular direction while it was within the crater; but when it had riſen above the edges, inclined towards the weſt, from the action of a light wind, and when it had riſen higher, dilated into an extended but thin volume. This ſmoke was white, and being impelled to the ſide oppoſite that on which I was, did not prevent my ſeeing within the aperture; in which I can affirm, I very diſtinctly perceived a liquid ignited matter, which continually undulated, boiled, and roſe and fell, without ſpreading over the bottom. This certainly was the melted lava which had ariſen to that aperture from the bottom of the Etnean gulf.

The favourable circumſtance of having this aperture immediately under my view induced me to throw into it ſome large ſtones, by rolling them down the ſteep declivity below me. Theſe ſtones, which were only large pieces of lava that I had detached from the edges of the crater, bounding down the ſide, in a few moments fell on the bottom, and thoſe which entered into the aperture, and ſtruck the liquid lava, produced a ſound ſimilar to that they would have occaſioned had they fallen into a thick tenacious paſte. Every ſtone I thus threw ſtruck againſt and looſened others in its paſſage, which fell with it, and in like manner ſtruck and detached others in their way, whence the ſounds produced were conſiderably multiplied. The ſtones which fell on the bottom rebounded, even when they were very large, and returned a ſound different from that I have before deſcribed. The bottom cannot therefore be conſidered a only a thin cruſt; ſince, were it not thick and ſolid, it muſt have been broken by ſtones ſo heavy falling from ſo great a height.

This deſcription will perhaps be better underſtood by an inſpection of Plate II.*, which exhibits the ſummit of Mount Etna ſurrounded with large pieces and maſſes of lava: A A A repreſents one edge of the lava of 1787, which iſſued from the upper crater. B B the circumference of the crater, with its cleft C C, through which the internal part is diſcernible. D the flat bottom of the crater. E the aperture in the bottom, from which the larger column of ſmoke F F aroſe; which aperture, though it was on one ſide of the bottom, is, for the greater perſpicuity, repreſented in the middle. G G that part of the edge of the crater from which its internal part is moſt diſtinctly viſible, and where the deſign of it might moſt conveniently be taken. H H the ſmaller column of ſmoke to the north-eaſt.

To ſatisfy one emotion of curioſity, is frequently to excite another. I had at firſt approached this volcano with a kind of ſuperſtitious awe. The hiſtories of every age, the relations of travellers, the univerſal voice of Europe, had all contributed to inſpire thoſe who ſhould adventure to viſit it with dread: but as at this time it ſeemed to have laid aſide its terrors, and was in a ſtate of perfect calmneſs and tranquillity, I was encouraged to become more familiar, and to endeavour to pry into more of its ſecrets. I have already obſerved that the ſide of the crater to the weſt is of a more gentle declivity than the others; and I therefore conceived that this might ſerve me as a ladder to deſcend to the bottom, where I might have added to the obſervations I had already made, other novel and important facts. But the perſons whom I had brought with me as guides would not conſent that I ſhould expoſe myſelf to ſuch danger. They could not, however, prevent me from making at my eaſe the obſervations I have here publiſhed, and walking leiſurely about the ſummit of the mountain, notwithſtanding the dangerous conſequences with which they threatened me; telling me that, ſhould the wind change, the column of ſmoke muſt be turned towards us, and might deprive us of life by its peſtilential fumes; that beſides, we were not certain that the lava at the bottom, which now appeared ſo calm and ſtill, would long remain in the ſame ſtate; but that it was poſſible, from circumſtances difficult to foreſee, that it might be thrown up on a ſudden, and puniſh our imprudent curioſity by burying us beneath the fiery ruin; in ſupport of which ſuggeſtion they produced ſeveral inſtances of ſudden and moſt unexpected eruptions.

We have ſeen above that there were two columns of ſmoke ariſing from Etna. It is to be remarked that, beſides that point of Mount Etna on which I ſtood, there is another to the north, a quarter of a mile higher, and which renders the ſummits of Etna properly bifurcated. Within the firſt prominence is ſunk the crater I have deſcribed; and on the ſide of the other is the ſecond, from which aſcends a leſſer column of ſmoke. The ſecond crater is ſmaller by about the one half than that I have already deſcribed; and the one is ſeparated from the other only by a partition of ſcoriæ and accumulated lava, which lies in the direction of from eaſt to weſt. I made my obſervations on this ſecond crater from a ſmall diſtance; but it was impoſſible to advance to it, on account of the numerous and thick ſtreams of ſmoke by which it was ſurrounded. This, however, was no great diſappointment, after having ſeen and examined the principal crater, which is that whence ſeveral currents of lava had iſſued in 1787. I ought certainly to conſider myſelf as extremely fortunate, in being able to gratify my curioſity with ſo near and diſtinct a view of the objects I have deſcribed; as the guides aſſured me that, among all the times when they had conducted ſtrangers to the ſummit of Etna, this was the only one in which they had a clear and undiſturbed view of the internal parts of that immenſe gulf. After my return to Catania, the Chevalier Gioeni likewiſe declared

* The learned may conſult the original. The drawing is miſerable.

Engraved by George Cooke.

Summit of Etna.

to me that in all his different excurſions to that mountain, he had never had a good fortune ſimilar to mine; and that a month before my arrival he had made a journey to Etna with the Chevalier Dangios, furniſhed with the neceſſary inſtruments to aſcertain accurately the height of the mountain; but when they had arrived at the foot of the cone, where they had propoſed to begin their operations, they were obliged to return back from the obſtacles they met with, which, to ſay the truth, are commonly neither few nor ſmall.

Etna riſes to a prodigious height above the level of the ſea, and its ſummit is uſually covered with ſnows and ice, and obſcured with clouds, except when the latter are low and range along the ſides. The winds likewiſe frequently blow with ſuch violence that perſons can ſcarcely keep their feet, not to mention the acute cold which benumbs the limbs. But the moſt formidable impediments to the progreſs of the adventurers who attempt this perilous journey, are the ſtreams of ſulphureous vapour which riſe on the ſides, and the thick clouds of ſulphureous ſmoke which burſt forth from the mouth of the volcano, even when not in a ſtate of agitation. It ſeems as if nature had placed theſe noxious fumes as a guard to Etna, and other fiery mountains, to prevent the approach of curioſity, and ſecure her myſterious and wondrous labours from diſcovery. I ſhould, however, juſtly incur the reproach of being ungrateful, were I not to acknowledge the generous partiality ſhe appeared to manifeſt towards me. At the time I made my viſit the ſky was clear, the mountain free from ſnows, the temperature of the atmoſphere not incommodious, the thermometer ſtanding at ſeven degrees above the freezing point (48° of Fahrenheit), and the wind favouring my deſign, by driving the ſmoke of the crater from me, which otherwiſe would alone have been ſufficient to have fruſtrated all my attempts. The ſtreams of ſmoke I met with in my way were indeed ſomewhat troubleſome, but they might have been much more ſo; though, had our guides conducted us by another road, as on my return to Catania I found they might have done, we ſhould have eſcaped this inconvenience.

It here will not be improper to compare theſe obſervations on the crater of Etna with thoſe of Baron Riedeſel, Sir William Hamilton, Mr. Brydone, and Count Borch; as ſuch a compariſon will ſhew the great changes which have taken place in this volcano within the ſpace of twenty years; that is, from the time when it was viſited by Baron Riedeſel in 1767, to that of my journey in 1788. At the time when that traveller made his obſervations, the crater was enlarged towards the eaſt, with an aperture which now no longer exiſts. He has not given the meaſure of its circuit, nor has he mentioned the interior aſpect of the crater; probably becauſe he had not ſeen it, having been, as I imagine, prevented by the quantity of ſmoke which he tells us continually aſcended from it.

It is worthy of notice, however, that at that time there was not at the bottom of the crater the hard flat ſurface I have deſcribed; ſince the ſtones thrown into it did not return the ſmalleſt ſound. Within the gulf itſelf was heard a noiſe ſimilar to that of the waves of the ſea when agitated by a tempeſt, which noiſe probably proceeded from the lava within the bowels of the mountain, liquefied and in motion. We may hence conceive how eaſily a volcano may begin to rage on a ſudden, though before apparently in a ſtate of complete tranquillity; for if we ſuppoſe a ſuperabundant quantity of elaſtic ſubſtances to have been ſuddenly developed in the liquid lava of Etna, either at the time when Baron Riedeſel viſited the crater, or when I obſerved it in a ſtate of ſlight commotion within the gulf, it muſt immediately have ſwelled in every part, beating violently againſt the ſides of the caverns in which it was impriſoned, thundered among the deep cavities, and burſting forth through the ſides, have poured out a river of fire; or ſhould

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its violence have been there reſiſted, it would have ruſhed up within the crater, until it overflowed its brink, and deluged the ſides of the mountains with its torrents.

Sir William Hamilton, on the 26th of October, 1769, arrived at the ſummit of Etna with great difficulty, on account of the ſnows he met with in his way, the ſeverity of the atmoſphere, the ſulphureous vapours, and the violence of the wind. He was unable to view diſtinctly the lower parts of the crater, being prevented by the great quantity of ſmoke which iſſued from it; though when this ſmoke was ſometimes driven away by the wind, he could diſcover that the crater was ſhaped like a funnel, diminiſhing until it ended in a point; and that this funnel was incruſted over with ſalt and ſulphur. The crater was two miles and a half in circumference.

From the time therefore of the journey of Baron Riedeſel to that of Sir William Hamilton, the crater muſt have undergone great changes in its ſtructure; ſince if the ſtones that were thrown into it gave no indications to the ear that they ſtruck againſt any ſolid body, it is manifeſt that there muſt then have been an abyſs as well as a funnel; and as the funnel terminated in a point when it was obſerved by Sir William Hamilton, it is evident that the flat bottom I have deſcribed, and which was about two-thirds of a mile in circuit, did not then exiſt.

The internal ſides of the crater, Sir William tells us, were covered with a cruſt of ſalt and ſulphur; but he does not ſpecify the nature of the former; and though the preſence of the latter is not improbable, he might have been led into a miſtake by the yellow colour, and have taken the muriate of ammoniac (ſal ammoniac) for ſulphur, as I did before I had examined it. Sir William has not told us that he made any examination at all; and it is probable that he judged only from the appearance it preſented to his eye.

He obſerves, laſtly, that the crater was two miles and a half in circumference; an eſtimate which may be made to agree with mine by neglecting the partition which ſeparates the greater crater from the leſs, and conſidering them both as one. The ſum of the two circumferences, according to the eſtimate I have given, would not then greatly differ from the meaſure of Sir William Hamilton. Nothing likewiſe can be more probable, than that among the various changes that have happened to Etna, this partition, by which the great crater is divided into two parts, has been produced.

Omitting the obſervations of Mr. Brydone, that "the tremendous gulf of Etna, ſo celebrated in all ages, has been looked upon as the terror both of this and another life; that it inſpires ſuch awe and horror, that it is not ſurpriſing that it has been conſidered as the place of the damned:" and other ſimilar philoſophical reflections which he has employed; and confining ourſelves to what he actually ſaw on the 29th of May, 1770, we learn from him that "the crater was then a circle of about three miles and a half in circumference; that it went ſhelving down on each ſide, and formed a regular hollow, like a vaſt amphitheatre; and that a great mouth opened near the centre *.

From the time of the journey of Sir William Hamilton therefore, to that of the viſit of Brydone, that is to ſay within the ſhort ſpace of a year, various changes had happened to this volcano, by the enlargement of its crater, and a ſpacious aperture formed in its bottom.

Count Borch appears to have wiſhed to exceed the three other travellers in brevity, relative to this ſubject; ſince he only tells us that he arrived at the mountain on the 16th of December 1776, and that the crater of Etna is formed like a funnel. He adds

* Brydone's Tour through Sicily and Malta, vol. i. p. 195, 196.

however,

however, what is worthy of notice, that the ſummit of Etna is bifurcated, as I obſerved it to be; a circumſtance not noticed by others, Sir William Hamilton even affirming that the ſummit of the mountain is ſingle; whence we may conclude that one of theſe ſummits has been produced ſince the time of the journey of Brydone, in 1770.

On comparing the above-cited obſervations, made within the ſpace of twenty-one years, we may perceive how many changes have taken place in Etna during that interval; and as within that time the mountain has ſuffered only two violent convulſions, in the eruptions of 1781 and 1787, it is evident that even in the ſtate of apparent inaction, it ſtill internally exerts its force.

To theſe obſervations, it may, likewiſe, not be without utility to add thoſe of M. D'Orville. He aſcended Etna in 1727, and remarked two craters; one larger than the other. The latter he only mentions, but the former he deſcribes at ſome length. Its circumference was perhaps ſomewhat more than four miles. From it iſſued clouds of ſmoke and reddiſh flames. Theſe however did not prevent his approaching to the edge of the gulf; though to prevent the danger of falling into it, he and his companions faſtened themſelves to a rope held by three men. On looking into the crater, they were unable to diſcern the bottom, on account of the flames and ſmoke: they only obſerved that a conical hill formed of lava, roſe in the middle of the crater, the top of which they eſtimated to be ſixty feet below them; and they were able to ſee perhaps about ſixty lower; where they conjectured the circuit of this hill might be from ſix hundred to eight hundred feet *.

We have here a remarkable circumſtance relative to Etna, as it appeared in the time of M. D'Orville, and not obſerved by any one of the four travellers above cited—I mean the conical hill within the crater. Every obſervation therefore, tends to confirm the inconſtancy of the internal configuration and dimenſions of this volcano. It is an extinguiſhed forge, which in proportion to the violence of the fire, to the nature of the foſſil matters on which it acts, and of the elaſtic fluids which urge and ſet it in motion, produces, deſtroys, and re-produces various forms. The uſual and natural figure of the ſummit of a volcanic mountain is that of an inverted concave cone within, and one ſolid and erect without; and ſuch a configuration, in countries which are no longer in a ſtate of conflagration, is one of the moſt certain indications of the exiſtence of an ancient volcano. This cone, however, is liable to very great changes; according to the greater or leſs fury of the volcano, and the quantity and quality of the matters ejected. Its internal part, from more then one cauſe, is expoſed to continual violence and change. The prodigious cavities of the mountain make it almoſt appear ſuſpended in the air. It may eaſily therefore give way, and fall in; eſpecially on the violent impulſe of new matters which endeavour to force a paſſage through the upper part; in conſequence of which the inverted cone may, according to circumſtances, preſent the appearance of an aperture, or whirlpool, or a gulf. Should the liquid lava paſs through the aperture, and continue there ſome time, its ſuperficies by the contact of the cold air loſing its heat gradually, would congeal and form a cruſt or ſolid plain; and ſhould the fluid lava beneath, afterwards act forcibly on this cruſt, it might burſt it, or make a paſſage where it found leaſt reſiſtance; in which caſe the melted lava would occupy that aperture. Should then the cruſt, inſtead of aſcending in a ſingle body, be forced up in ſmall fragments, theſe cooled in the air, would fall down in immenſe quantities within the crater, and from the effect of the laws of gravity, muſt accumulate in the figure of a cone. Theſe theoretical conjectures, if they do not perfectly explain, may at leaſt enable us to con-

* Jacobi Philippi D'Orville Sicula,

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ceive the nature of the causes which have produced the difference of appearance observed at different times in the crater of Etna.

It is much to be regretted that we have no history of Etna; which, did we possess it, must greatly contribute to elucidate the theory of volcanos, and the causes of the various changes which have taken place at different times, in the summit of this mountain. That such changes have happened, is evident from the few but valuable notices concerning Etna, which we find in ancient authors. Of these I shall briefly state two or three which appear to be of most importance.

I shall first produce the authority of Strabo, though he was not himself an ocular witness, but relied on the information of others, who had visited Etna, and from whom he received the account, "That the summit was a level plain of about twenty stadia in circumference, surrounded by a brow or ridge, of the height of a wall; and that in the middle of the plain arose a smoky hill, the smoke of which ascended in a direct line, to the height of two hundred feet *."

If we consider this description as accurate, the crater of Etna was at that time surrounded by a brow or ridge, which I should explain as the sides or edges; and in the lower part, was separated by a mount rising in the middle †. The same geographer relates, that two men having ventured to descend upon the plain, were obliged immediately to return, from the violence of the heat ‡.

Solinus tells us that there were two craters from which the vapours issued §.

Cardinal Bembo likewise found two craters on the summit, the one higher than the other, and about as far distant as a stone might be thrown from a sling. The extreme violence of the wind, and the exhaling fumes, prevented him from approaching the upper crater. The lower he found to be formed like an immense pit, and surrounded with a plain of no great extent, which was so hot that he could not bear his hand on it. From its mouth, as from a chimney, continually issued a column of smoke.

Of the other crater which he could not observe himself, he received a description at Catania from a monk, who, he assures us, was a man deserving credit, and well acquainted with such subjects. He informed him that this crater was situated on the highest part of the summit of Etna; that it was about three miles in circumference; formed like a funnel; and that it had in the middle a spacious cavity. He asserted that he had made the circuit of it, along a kind of narrow ridge; that from time to time, it threw out stones and burning matters to a considerable height, roaring and shaking the ground; but that in the intervals when it was undisturbed, he had observed it without danger or difficulty.

In the time of Fazello, however, who visited Etna after Cardinal Bembo, there were no longer two craters, but only one; the circumference of which, as he informs us, was four miles. It had the usual form of the funnel, emitted fire and thick smoke, but at intervals was calm, and might be approached; at which times a subterraneous noise was heard, and a sound like that of the boiling of an immense caldron on a vast fire.

* Οι δ'ουν νεωςὶ ἀναβαντες διηγουντο ἡμιν, οτι καταλαβοιεν ἀνω πεδιον ὁμαλον, ὁσον εἰκοσι ςαδιων την περιμετρον, κλειομενον ὀφρυι τεφρωδει, τειχιου το ὑψος ἐχοντι, οραντε το μεσον βουνον τεφρωδη την χροαν, ὑπερ δε του βουνου νεφος ὀρθιον διανεςηκος εις ὑψος οσον διακοσιων ποδων εικαζειν δε καπνω.

† This observation agrees with that of D'Orville mentioned above. I find likewise that similar mounts have sometimes been thrown up within the crater of Vesuvius. De Bottis *Istoria di varj incendj del Vesuvio.*

‡ Δυο δε τολμησαντας προσελθειν εις το μεδιον· ἐπεδε θεσμοτερας ἐβαινον της αμμου και βαθυτερας, αναςρεψαι, μηδεν εχοντας περιτοτερον φραζειν των φαινομενων τοις πορρωθεν αφορωσι.

"§ In Etnæ vertice hiatus duo sunt, crateres nominati, per quos eructatus erumpit vapor. Cap. xi.

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Theſe obſervations were made by him in 1541, and 1554; in both which years the crater appears to have been ſingle *.

Theſe few citations appear to me ſufficient to ſhew what changes have taken place in the ſummit of Etna, relative to number, the form, and the ſize of its craters, according to the different effects of its conflagrations at different times. But there is likewiſe another alteration which ſhould not be paſſed unnoticed, deſcribed by two writers who themſelves obſerved it, Fazello and Borelli; I mean the falling in and abſorption of the extreme ſummit of Etna within its crater. The former of the above-mentioned authors relates, that in his time there aroſe in the mouth of the crater, a little hill, iſolated on every ſide, which formed the vertex of the mountain; and which in a terrible eruption fell into, and was buried in the gulf, thus enlarging the crater, and diminiſhing the height of the mountain. This hill itſelf had been produced by a former eruption in 1444 †.

In like manner, Borelli informs us that in the conflagration of 1669, the ſummit of Etna, which roſe like a tower to a great height above the part which is level, was ſwallowed up in the deep gulf ‡.

I have already ſaid, that when I viſited Etna, its ſummit was divided into two points, or little mountains, one of which roſe a quarter of a mile above the other. I ſhould not be ſurpriſed were I to hear that in ſome new and fierce eruption, the higheſt of theſe had fallen in, and the two craters become one of much larger dimenſions. We know that the ſummit of Veſuvius has ſometimes fallen down in the ſame manner; nor does it appear difficult to aſſign the cauſe. It ſeems to admit of no doubt that the higheſt parts of Etna, and other mountains which vomit fire from their ſummits, have their foundations on the ſides of the crater, which extend to an immenſe depth. In any violent earthquake therefore, or impetuous ſhock of the lava endeavouring to force a paſſage, it may eaſily be imagined that thoſe foundations muſt be torn up and broken away, and the ſummit of the volcano fall and be loſt in the gulf.

Theſe dilapidations have not however, from time immemorial, produced any ſenſible diminution of the height of the ſummit of Etna; ſince the loſſes occaſioned by ſome eruptions are repaired by others which follow. This may be inferred from a phenomenon uſually inſeparable from the ſummit of Etna, though by rare accident, not obſervable at the time of my journey; I mean the ice and ſnow with which it is covered. Had any conſiderable decreaſe of the height of the mountain taken place, in conſequence of the ſummit repeatedly falling in, in former ages, the ice and ſnow would not certainly in a climate ſo mild, have continued to envelope the top of the mountain as they now do, even during the greateſt heats of ſummer. But this continual reſidence of the ſnow and ice on Etna has been celebrated by all antiquity; for near obſervation was not neceſſary to aſcertain this phenomenon, ſince it is diſtinctly apparent at the diſtance of a hundred miles. *Adſcendit ea regio* (ſays Fazello, ſpeaking of the upper region of Etna) *paſſuum millia fere xii.; quæ per hyemem tota nivibus obſita extremiſque frigoribus riget: per æſtatem quoque nulla ſui parte nec canitie nec gelu caret: quod equidem admiratione dignum eſt; cum vertex incendia prope ſempiterna jugi flammarum eructatione inter nives ipſas pariat, enutriat, ac continuet.* "This region extends nearly twelve miles; and even in ſummer, is almoſt perpetually covered with ſnow, and extremely cold; which is the more wonderful as the ſummit continually produces, nouriſhes, and pours forth flames amid the ice and ſnow with which it is enveloped."

* Fazel. Sic. † Ubi ſup. ‡ Ubi ſup.

Solinus and Silius Italicus give the same description. The former says—*Mirum est quod in illa ferventis naturæ pervicacia mixtas ignibus (Ætna) nives profert: et licet vastis exardet incendiis, aprica canite perpetuo brumalem detinet faciem* *. "Etna, in a wonderful manner, exhibits snows mixed with fires; and retains every appearance of the severest winter amid her vast conflagrations."

Silius Italicus has the following lines:

"Summo cana jugo cohibit (mirabile dictu)
Vicinam flammis glaciem, æternoque rigore
Ardentes horrent scopuli; stat vertice celsi
Collis hyems, calidaque nivem tegit atra favilla †."

"Where burning Etna, towering, threats the skies,
"'Mid flames and ice the lofty rocks arise;
"The fire amid eternal winter glows,
"And the warm ashes hide the hoary snows."

And since I have quoted a poet, I will cite two others; Claudian and Pindar; as it is sufficiently evident that poetry here must express truth and not fiction.

"Sed quamvis nimio fervens exuberet æstu,
Scit nivibus servare fidem: pariterque favillis
Durescit glacies, tanti secura vaporis,
Arcano defensa gelu, fumoque fideli
Lambit contiguas innoxia flamma pruinas ‡."

"Amid the fires accumulates the snow,
"And frost remains where burning ashes glow;
"O'er ice eternal sweep th' inactive flames,
"And winter, spite of fire, the region claims."

Thus the Latin poet; but the Greek has given us a picture of Etna much more highly coloured, representing it not only as the eternal abode of snows, but as the column of heaven, to express its astonishing height.

"Κιων δ' ἐρανου
Νιφοεσσ' Αἰτνα παντετης
Χιονος ὀξεια τιθηνα §."

——"Snowy Etna, nurse of endless frost,
"The mighty prop of heaven."

It is to be remarked that Pindar lived five hundred years before the Christian æra.

I now return from this digression, which though not indeed very short, appears to me perfectly appropriate to the subject; and proceed to resume my narrative. I shall first speak briefly of a phenomenon relative to the smoke which arises from the crater of Etna, and which was seen differently by Mr. Brydone, Count Borch, and myself. Mr. Brydone tells us that "from many places of the crater issue volumes of sulphureous smoke, which being much heavier than the circumambient air, instead of rising in it, as smoke generally does, immediately on its getting out of the crater, rolls down the side of the mountain like a torrent, till coming to that part of the atmosphere of the same specific gravity with itself, it shoots off horizontally, and forms a large track in the air according to the direction of the wind."

* Cap. xi. † Lib. xiv. ‡ Claud. de Rapt. Pros. § Pind. Pyth. Od. i.

On the contrary, the ſmoke when ſeen by Count Borch, at the intervals when the air was calm, aroſe, perpendicularly, to a great height, and afterwards fell, like white fleeces, on the top of the mountain. I ſhall not preſume to doubt theſe two facts, though I obſerved neither of them. The two columns of ſmoke which I ſaw, though bent ſomewhat from the perpendicular by the wind, aſcended with the uſual promptitude of ordinary ſmoke, (a certain proof that it was conſiderably lighter than the ambient air,) and, when at a great height, became extremely rarefied and diſperſed. This difference in the appearance of the ſmoke as obſerved by the two authors before mentioned and myſelf, may ariſe not only from the gravity of the air on Etna being different at different times, but alſo from the diverſity of the ſmoke, which may be ſometimes lighter and ſometimes heavier than the air that ſurrounds it; differing in its nature according to the quality of the ſubſtances from which it is produced. Such a variation in its ſpecific gravity muſt induce us to conclude that the bodies which burn within the crater are ſpecifically different.

The effects of the air at the ſummit of Etna, as experienced by myſelf and ſome of the travellers I have before cited, were likewiſe different. Sir William Hamilton tells us, that the thinneſs of that fluid occaſioned a difficulty of reſpiration; and Count Borch appears to have experienced a ſtill greater inconvenience of that kind, ſince he ſays—"The rarity of the air on this mountain is extremely ſenſible, and almoſt renders that fluid unfit for reſpiration." On the contrary, Baron Riedeſel felt no ſuch effect, as far, at leaſt, as we can judge from his own words. "I did not perceive, as ſeveral travellers have aſſerted, that the air here is ſo thin and rarefied as to prevent, or at leaſt greatly incommode, reſpiration." Mr. Brydone has ſaid nothing on the ſubject, and his ſilence may induce us to couclude that he experienced no difficulty.

I, my ſervant, and the two guides, ſuffered no inconvenience from the air. The exertions we had made, indeed, in climbing up the craggy ſteep declivites which ſurround the crater, produced a ſhortneſs of breathing; but when we had reached the ſummit, and recovered from our wearineſs by reſt, we felt no kind of inconvenience, either while ſitting, or when, incited by curioſity, we went round and examined different parts of the edges of the crater. The ſame is affirmed by Borelli: *Æque bene reſpiratio in cacumine Ætnæ abſolvitur, ac in locis ſubjectis campeſtribus*—"Reſpiration is performed with the ſame eaſe on the top of Etna, as in the country below."

Several writers have treated of the difficulty of reſpiration experienced by thoſe who travel over high mountains, and other inconveniences to which they are expoſed; but none, in my opinion, more judiciouſly than M. Sauſſure, in his Travels among the Alps. The obſervations he has made appear to me to explain the cauſe of theſe different accounts, relative to the effect of the air on the top of Etna. When the height above the level of the ſea was two thouſand four hundred and fifty poles, or nearly ſuch, which he found to be that of Mount Blanc, every individual felt more or leſs inconvenience from the rarefaction of the air, as happened to himſelf and nineteen perſons who accompanied him, when in Auguſt 1787, he aſcended that mountain. But when the elevation was much leſs, as for example, nineteen hundred poles, ſome of theſe perſons felt no difficulty, among whom was this naturaliſt; though he confeſſes that he began to experience inconvenience as he aſcended higher. We have not indeed any certain obſervations relative to the exact height of Etna, as is ſufficiently proved by the different eſtimates given by different naturaliſts. Signor Dangios, however, aſtronomer at Malta, in the year 1787, meaſured the height of this mountain by a geometrical method, and the public anxiouſly expects the reſults, which will ſatisfactorily ſolve this important problem. In the mean time, from comparing the meaſures hitherto aſſigned,

the elevation of Etna above the level of the ſea is probably ſomewhat leſs than nineteen hundred poles. Hence we underſtand why reſpiration, in many perſons, is not incommoded, while the contrary happens to others, according to the different ſtrength and habit of body of different individuals.

After having, for two hours, indulged my eyes with a view of the interior of the crater, that is, in the contemplation of a ſpectacle which in its kind, and in the preſent age, is without a parallel in the world; I turned them to another ſcene, which is likewiſe unequalled for the multiplicity, the beauty and the variety of the objects it preſents. In fact, there is, perhaps, no elevated region on the whole globe which offers, at one view, ſo ample an extent of ſea and land as the ſummit of Etna. The firſt of the ſublime objects which it preſents is the immenſe maſs of its own coloſſal body. When in the country below it, near Catania, we raiſe our eyes to this ſovereign of the mountains, we certainly ſurvey it with admiration, as it riſes majeſtically, and lifts its lofty head above the clouds; and with a kind of geometric glance we eſtimate its height from the baſe to the ſummit: but we only ſee it in profile. Very different is the appearance it preſents, viewed from its towering top, when the whole of its enormous bulk is ſubjected to the eye. The firſt part, and that neareſt the obſerver, is the Upper Region, which, from the quantity of ſnows and ice beneath which it is buried during the greater part of the year, may be called the frigid zone, but which, at that time, was diveſted of this covering, and only exhibited rough and craggy cliffs, here piled on each other, and there ſeparate, and riſing perpendicularly; fearful to view and impoſſible to aſcend. Towards the middle of this zone, an aſſemblage of fugitive clouds, irradiated by the ſun, and all in motion, increaſed the wild variety of the ſcene. Lower down, appeared the Middle Region, which, from the mildneſs of its climate, may merit the name of the temperate zone. Its numerous woods, interrupted in various places, ſeem, like a torn garment, to diſcover the nudity of the mountain. Here ariſe a multitude of other mountains, which in any other ſituation would appear of a gigantic ſize, but are but pigmies compared to Etna. Theſe have all originated from fiery eruptions. Laſtly the eye contemplates, with admiration, the Lower Region, which, from its violent heat, may claim the appellation of the torrid zone; the moſt extenſive of the three, adorned with elegant villas and caſtles, verdant hills, and flowery fields, and terminated by the extenſive coaſt, where to the ſouth, ſtands the beautiful city of Catania, to which the waves of the neighbouring ſea ſerve as a mirror.

But not only do we diſcover, from this aſtoniſhing elevation, the entire maſſy body of Mount Etna; but the whole of the iſland of Sicily, with all its noble cities, lofty hills, extenſive plains, and meandering rivers. In the indiſtinct diſtance we perceive Malta; but have a clear view of the environs of Meſſina, and the greater part of Calabria; while Lipari, the fuming Vulcano, the blazing Stromboli, and the other Eolian iſles, appear immediately under our feet, and ſeem as if, on ſtooping down, we might touch them with the finger.

Another object no leſs ſuperb and majeſtic, was the far-ſtretching ſurface of the ſubjacent ſea which ſurrounded me, and led my eye to an immenſe diſtance, till it ſeemed gradually to mingle with the heavens.

Seated in the midſt of this theatre of the wonders of Nature, I felt an indeſcribable pleaſure from the multiplicity and beauty of the objects I ſurveyed; and a kind of internal ſatisfaction and exultation of heart. The ſun was advancing to the meridian, unobſcured by the ſmalleſt cloud, and Reaumur's thermometer ſtood at the tenth degree above the freezing point. I was therefore in that temperature which is moſt friendly to man; and the refined air I breathed, as if it had been entirely vital, communicated a vigour

vigour and agility to my limbs, and an activity and life to my ideas, which appeared to be of a celeſtial nature.

Not without regret, I, at length, recollected it was time to return, and relinquiſh this enchanting ſcene; ſince I had determined to paſs the enſuing night at San Niccolo dell' Arena, to avoid the hard bed and inconveniences of the Grotto delle Capre. I had reſolved, likewiſe, to return to Catania by another way, in order to examine objects which might render my journey of greater utility. The road I took, the objects which preſented themſelves, and the obſervations I made on them, I ſhall relate in the following chapter.

CHAP. IX.—RETURN FROM MOUNT ETNA TO CATANIA.

Manner in which the Author deſcended with eaſe and ſecurity from the ſummit of Etna.—Materials of which the Torre del Filoſofo is compoſed.—Confirmation that the lava which flowed in October 1787, is ſtill internally penetrated by the fire.—The obſervation that the ſecondary mountains on the ſides of Etna are of volcanic origin, not novel but ancient.—Probability that Monte Roſſo was the reſult of a partial eruption which had no communication with the crater of Etna.—Another eruption from the ſides of Etna which had no connection with that crater.—Great want of water experienced by the peaſants who inhabit Etna, from a long dry ſeaſon.—Affecting incident ariſing from this circumſtance.—A ſcarcity of ſprings common in volcanized countries.—The Scogli de' Ciclopi, or Rocks of Cyclops.—Some of them, but not all, of a priſmatic conformation.—Zeolites found on theſe rocks.—Vitrification of thoſe zeolites in the furnace.—Pumices not found on Mount Etna, as has been affirmed by Count Borch, and others.—Animals obſerved by the Author in the Middle and Upper Regions of Etna.—Two muſeums in Catania already known to ſtrangers, and a third lately eſtabliſhed, valuable for its contents.—Natural Hiſtory little cultivated at Catania, with reſpect to that part which relates to the mineral kingdom; but more relatively to the animal.

THE aſcent up the ſteep and craggy cone of Etna, though not more than a mile in a direct line, coſt me, as I have already ſaid, three hours of laborious and fatiguing exertion. It ſeems ſcarcely neceſſary to ſay that the deſcent employed me leſs time, but the difference greatly exceeded my expectation. I found that to effect this deſcent nothing more was required, but to fix my feet firmly on ſome large piece of ſcoriæ, and balance my body, ſince that piece, from almoſt the ſmalleſt impulſe I could give it, would ſlide ſwiftly down the deſcent, and convey me to a conſiderable diſtance, till ſtopped by the accumulation of the leſſer pieces of ſcoriæ which it drove before it; when I had only to ſelect another large piece, on which I again glided down as before; only taking care, with the ſtaff I held in my hand, to turn aſide the pieces of ſcoriæ which followed me in my deſcent, that they might not ſtrike againſt and wound my legs. In this manner, in a few minutes, I arrived at the bottom of that declivity.

A little below the ſummit of Etna, are the ruins of a very ancient fabric, called La Torre del Filoſofo, the Tower of the Philoſopher; it having been pretended, and believed by many, that it was built by Empedocles, that he might fix his habitation in a place convenient for obſerving the conflagrations of Etna. Others imagine it to have been an ancient temple of ſome deity; while others have conjectured that it was a watch-tower, built by the Normans to obſerve the motions of their enemies, and give notice of them, by ſome ſignal, to the different bodies of troops ſcattered over the iſland.

It

It is very apparent that theſe, and other opinions which I omit for the ſake of brevity, are very inconcluſive with reſpect to the real uſe and deſign of this ruined edifice, which could but little attract the notice of hiſtory. I did not viſit it in my journey to Etna, having been conducted another way by my guides. Nor ſhould I have regretted not having ſeen it, had I not reflected, that the great antiquity of the fabric might juſtly excite a curioſity to examine the materials, and aſcertain whether they were lateritious or volcanic. This induced me, after I had returned to Italy, to write to the Abbate Franceſco Ferrara, at Catania, a perſon well verſed in the ſcience of nature, requeſting him to ſend me, to Pavia, ſome ſpecimens of the materials of which the Torre del Filoſofo was compoſed. He very politely complied with my requeſt, and I found on examination, that theſe materials were of the following kind: they conſiſt, firſt, of a cement of lime, which, by length of time, has become carbonate of lime; in which cement were incorporated great numbers of pieces of black cellular ſcoriæ of lava; but ſo changed by the effect of time, that many of them were become externally pulverulent, and internally extremely friable. The ſhoerls they contained had likewiſe loſt, at the ſuperficies of the ſcoriæ, their natural lineaments, and all their luſtre, and were become ſo ſoft that they might every where be cut with the point of a penknife. This cement was, in the ſecond place, united to two kinds of lava, which exhaled an argillaceous odour in their fractures, and had for their baſe the horn-ſtone. One of theſe was very compact, extremely hard, of a ferruginous colour, a fine grain, with numerous feltſpar points ſcattered in it. The other was a grey colour, of rather a fine texture, and contained an incredible quantity of feltſpars; ſo that when viewed with a lens, by the clear light of the ſun, it appeared extremely brilliant. The materials, therefore, of this edifice, whatever was its original deſtination, were, in part taken from the place, with the addition of a cement of lime, to give the building the neceſſary ſolidity *.

I afterwards, again croſſed the lava which flowed in October 1787, and, as I returned by a different way, I found myſelf near another part of it, where it ſtill remained extremely hot; which tended to confirm me in my opinion that the internal and central part of this lava ſtill contains a very active and ſtrong fire.

Having reached the middle region, I aſcended ſome of thoſe mountains which I had obſerved from the ſummit of Etna, and which, from their conical figure, and the cavity at their top, clearly ſhew that they are the productions of fire †. I was, in fact, convinced

* I have read, in the works of ſome travellers, that fragments of brick and marble are found in the Torre del Filoſofo; but the Abbate Ferrara has aſſured me that ſuch fragments no longer exiſt.

† I had at firſt believed that the obſervation that theſe mountains are truly volcanic was of late date, referring it to Sir William Hamilton, who has deſcribed their conical form, and the crater, or incavation at their ſummit; but I find it to be very old, ſince it is mentioned by Borelli, and, before him, by Fazello. The following are the words of the former: "Extant nedum in ſummitate Ætnæ, ſed etiam in ejus dorſo, campeſtres voragines, quæ habent fere omnes peculiarem monticulam adinſtar verrucæ in animalis cute exporrectæ; ſuntque predicti colles valde acclives, habentque figuram coni acutanguli plano parallelo baſi diſſecti; et in ſummitate cujuſlibet eorum ſinuoſa cavitas reperitur, a qua olim flammeæ, arenæ, et glaræ exierunt."—"Extinct vortices (or craters) are found not only on the ſummit of Etna, but alſo on the ſides. They have almoſt all of them their peculiar hills, projecting like a wart on the ſkin of an animal; which hills are extremely ſteep, and have the figure of a rectangular cone diſſected parallel to its baſe. At the top of each is a cavernous cavity, from which formerly iſſued flames, ſand, and lava."

We know that by *glarea* he means lava; in fact, at Catania, it is ſtill called *ſciara*.

Fazello had before obſerved and deſcribed theſe volcanic hills. His words are: "Plurimos præterea nemoroſos et editos offendimus colles, quorum cacumina voragines, licet ſilveſcentes, exhibebant. Eos veterem eſſe materiam ex viſceribus montis olim proditam, poſtremi profluvii hiatus, qui ſimilem fere formam, enataſque recens habet arbores, arguebat."—"We likewiſe find ſeveral lofty hills, the tops of which, though overgrown with wood, exhibit the appearance of craters. The mouth of the laſt eruption, which

convinced that they bear unequivocal marks of the effects of that deſtructive agent in an accumulation of lavas, ſcoriæ, and volcanic ſand.

Another enquiry relative to theſe mountains here naturally ſuggeſts itſelf. Is their origin derived from the melted matter contained within the immenſe abyſs of Etna, which, unable to reach the crater, from the exceſſive height, has burſt forth through its ſides, and thus formed theſe mountains? or, as is perhaps more probable, have they been produced by particular conflagrations and eruptions which have no communication with the immenſe furnace within the crater?. I know that the generality of volcaniſts embrace the former opinion, and reject the latter with contempt; and I find, that, whenever the leſſer mountains are produced on the ſides of the principal volcano, by the means of eruptions, they uſually have recourſe to this hypotheſis for the explication of the cauſe. Thus, ſince the eruptions of lava which have iſſued from the crater of Veſuvius are much more numerous than thoſe of Etna, they endeavour to account for the difference, by alleging that, in conſequence of the ſmall height of the former volcano, the lava can more eaſily reach the crater; whereas, in the latter, it is compelled to force a paſſage through the ſide, from being unable to riſe to ſo prodigious an elevation.

I readily admit, that this frequently happens; but inſtances may certainly be cited which afford ſtrong reaſons to believe that the production of the lateral mountain ariſes from partial eruptions, which have no communication with the principle crater. Of this Monte Roſſo is an example. In the morning of the 11th of March 1669, a vaſt cleft opened not far from the place in which, afterwards, Monte Roſſo aroſe, and extended for the ſpace of ten miles, in the direction of the grand crater of Etna. On the night following, in the place where this mountain now ſtands, another large cleft opened, from which were immediately ejected immenſe clouds of ſmoke, and ſhowers of melted ſtones, preceded by a tremendous noiſe and violent concuſſions of the earth.

On the night of the 12th a river of lava poured down; and the next day a prodigious quantity of ſand and ſtones was thrown out. Yet during all theſe ſubterranean thunders, convulſions of the earth, ſtreams of lava, and ſhowers of ſtones, the upper crater of Etna was perfectly undiſturbed, and only, from time to time, emitted ſome light ſmoke which had before iſſued, and is uſually in its greateſt ſtate of tranquility *. I know not whether I am miſtaken in conſidering this as a probable proof that there is no communication between the higheſt mouth of Etna, and the new one which has opened in the ſide ſome miles diſtant from it. I have obſerved likewiſe, with Borelli, that the

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is nearly of the ſame form, and already bears trees, renders it probable that they are compoſed of the matter anciently ejected from the bowels of the mountain."

The ſame obſervation is likewiſe repeated by D'Orville, who, in 1727, viſited Etna—"Colles hi non ſolum circum magnum creterem (Ætnæ), verum etiam inde per circuitum viginti mille paſſuum et ultra in toto monte diſperſi ſunt. Omnes hos colles aliquando igneam materiam e ſummo vertice ejeciſſe, omnia ſuadent; et in multis hujus rei adeo aperta extant veſtigia, ut nemo dubitare poſſit. Quin ipſe in culmine collis illius, quem *metæ* ſimilem diximus, poſitos in verticibus nonnullorum crateres depreſſos, et plane undique lapidum exuſtorum congerie circundatos animadverti." – "These hills are not only found adjoining to the great crater, but are diſperſed in a circuit of twenty miles and more, and, indeed, throughout the whole mountain. Every appearance proves that all theſe hills have once ejected a fiery matter from their ſummits; and in many the traces of this are ſo evident, that it is impoſſible to entertain a doubt. The remains of craters are apparent, and they are frequently ſurrounded with accumulations of burnt ſtones."

Thus we find the deſcription given by the Engliſh naturaliſt of this leſſer volcanic mountain, had been preceded by that of a Sicilian, an Italian, and a Dutch writer, all eye-witneſſes of what they deſcribed.

* Borelli, ubi ſup.

higheſt

higheſt crater, having remained ſilent and at reſt until the twenty-fifth day, afterwards began to rage with the ſame ſymptoms of ſmoke, thunders, earthquakes, and ejected ſand and ſtones; and in fine, by the ruin of its ſummit, precipitated and buried in its gulph. It ſeems extremely probable, that this change has been effected by the breaking away of the ſtony maſs which ſeparated the old and new gulphs, in conſequence of which the fire and effervescent matters forced their paſſage, and diſcharged themſelves from another opening at the ſummit of the mountain.

We muſt not omit to notice another fact related by the ſame writer, which, though it does not reſpect the formation of any mountain on the ſides of Etna, independent of a communication with its higheſt crater, may authorize us to conclude, that ſome lateral gulph may open and diſgorge fiery torrents without any ſuch communication. Such an eruption happened in 1636, when the ground, nine miles from the ſummit of Etna, opened in two places, and poured out two torrents of lava without any appearance of fire or ſmoke at the ſummit of the mountain. It is very probable that we ſhould have accounts of other ſimilar eruptions, and other mountains formed on the ſides of Etna, had the ancients ſtudied and recorded the conflagrations of that mountain, in the manner the moderns have begun to obſerve and deſcribe them.

Whatever may be the matters which cauſe and continue volcanos, it is only neceſſary that they ſhould exiſt and take fire in a place that has no communication with the central volcano, to produce partial eruptions and mountains, which may very naturally be ſuppoſed to happen.

After having ſlept at San Niccolo dell Arena the night preceding the 5th of September, I ſet out early the next morning, taking my way by the *Rocks of the Cyclops*, celebrated for the baſaltiform lavas of which they conſiſt. In this part of my journey I continually paſſed over lavas, and through ſeveral villages built upon them.

A ſhort time before I reached the rocks I was in ſearch of, a ſcene preſented itſelf, which, though foreign to my ſubject, the ſentiment of humanity and compaſſion we feel on witneſſing the misfortunes of our fellow-creatures will not permit me to paſs in ſilence.

Mount Etna has at all times been very deficient in ſprings; but when I was there the ſcarcity of water was extreme, not a drop of rain having fallen for nine months; and the rain-water which the peaſants of theſe places had collected in ciſterns being exhauſted, they were obliged to go in ſearch of it to thoſe parts of the mountain where a ſcanty ſpring might ſtill be found. Though in my journey up Etna I had ſufficient reaſon to notice this ſcarcity of water, by being made to pay for it much dearer than for wine at Catania, I was much more convinced of it when, on my way, I ſaw a number of women and girls carrying barrels as beaſts of burden, to fill with water at a ſpring on one ſide of the road. But the ſcene which made the greateſt impreſſion on me, I met with on my return, in the vicinity of Jaci; where I ſaw more than one hundred poor mountaineers of both ſexes, who had come thither to quench their thirſt at a ſtream of water which iſſued from the midſt of the lava. It ſtrongly excited my pity to ſee theſe wretched peaſants, all bare-footed, expoſed to a burning ſun, for the heat was then very great in thoſe low parts of the mountain; and labouring and ſweating under the load of large earthern veſſels, which they had brought on their ſhoulders and heads, a diſtance of more than ten miles, to carry home water. When they came within ſight of the ſpring, they exerted all the ſtrength they retained, haſtened their weary ſteps, and, when they reached it, began to drink with extreme eagerneſs, without for a long time taking away their lips. How much was my commiſeration increaſed, when they informed me they were obliged to perform this laborious journey every day, that is, to

Etna from the East

employ the whole day in it; travelling from the time of ſun-riſe till noon to reach the ſpring, and from noon to the duſk of the evening to regain their habitations, and carry refreſhment to their parched families! While I was liſtening to their ſad ſtory, it chanced that one of them, a boy about thirteen years of age, in ſetting down the veſſel he carried on his ſhoulder, let it ſlip, I know not how, out of his hand, and it broke by the fall. Words can ſcarcely deſcribe the conſternation, grief, and anguiſh, with which he appeared transfixed at the accident, while with bitter tears and in broken exclamations he lamented his misfortune, and expreſſed his fears of the conſequences he apprehended to himſelf, from his being thus diſabled from carrying home to his thirſty parents the expected ſupply. As little is it poſſible to deſcribe the joy, delight, and lively ſentiment of gratitude which he expreſſed, on my giving him a ſmall piece of money that he might buy, in a neighbouring village, another veſſel to replace that which was broken, and complete with the uſual ſucceſs his laborious journey.

Etna is not alone ſcantily ſupplied with ſprings. I have obſerved a ſimilar ſcarcity of them in the Eolian or Lipari iſlands, as we ſhall ſee in another part of this work; and if I am not miſtaken, the ſame want of them will be found in other volcanic countries; the cauſe of which appears to me evident. The rains which deſcend on mountains of this kind, either fall on bibacious tufas or ſcoriaceous matters, in which they ſink deep without again appearing on the ſurface in the lower places, becauſe they meet with no argillaceous or ſtony ſtrata to detain them; whereas ſuch ſtrata are frequent in mountains not volcanic, and produce numerous dropping ſprings, fountains, and ſources of rivers, as we find in the Alps and Apennines.

When again the rains fall on the ſolid and compact lavas, they do not ſink into them, but run down their declivities, forming indeed rivers and torrents, in the rainy ſeaſon, but never true ſprings. In ſeveral parts of Etna, and eſpecially near the Grotta delle Capre, I have ſeen large furrows hollowed in the lavas, by the continued action of the rain-water.

Two hours after noon I arrived at the rocks of the Cyclops; which are likewiſe termed iſlands, becauſe ſurrounded by the ſea, though they are ſcarcely a ſtone's throw from the ſhore on which the village of Trezza ſtands. It is poſſible that they might once make a part of the ſides of Etna, and have been ſeparated from them by the ſea; or they may have been thrown up out of the water by partial eruptions. I examined them, firſt making the circuit of them in a boat, and then aſcending them to obſerve their parts.

It is immediately apparent that ſome of theſe rocks conſiſt externally only of priſmatic columns, which fall perpendicularly into the ſea, in ſome places of the length of one foot, in others two, and in others more; but it is certain that other parts of theſe rocks have not the leaſt priſmatic appearance, and are only full of very irregular fiſſures, which have divided them into irregular pieces, as we frequently ſee in common lavas.

The rocks of the Cyclops preſent another object which has not eſcaped the acute examination of M. Dolomieu; I mean the numerous and various zeolites of great beauty which are found on their ſurface, and even in the middle of their ſubſtance, where there are ſmall pores and cavities. That naturaliſt thinks, with great reaſon, that theſe noble ſtones, after the congelation of the lavas derived their origin from the waters which filtrated through them, and held in ſolution the particles proper for the production of zeolites. It would be a uſeleſs labour were I to attempt their deſcription after it has been ſo well given by M. Dolomieu; I ſhall, therefore, only mention what I obſerved in them when I examined them in the furnace.

If we take ſmall pieces of lava, detached from the rocks to which the zeolites adhere, leave them for ſome time in the fire, and obſerve them after they have cooled, the following are the reſults:

The zeolites, though the lava, their matrix, has not undergone a complete fuſion, are vitrified, and have flowed over the ſurface of the lava, forming a leaf of glaſs; but the greater part become globules, which, from their lucid milky whiteneſs, reſemble pearls. When examined with the lens, theſe globules are found to be full of cracks, probably cauſed by the ſudden removal of the lavas from the furnace into the cold air. This glaſs is ſemi-tranſparent and hard. If we break the pieces of lava expoſed to the fire and examine the fractures, we ſhall find that only a ſemi-vitrification has taken place in the zeolites they contain. Some of theſe zeolitic lavas are of a homogeneous ſubſtance, but others include ſmall ſhoerls. The magnet attracts the powder of them, and ſome have polarity, attracting one end of the magnetic needle, and repelling the other.

I have but a few obſervations more to make, relative to Etna. Count Borch, not perfectly ſatisfied with the received diviſion of the mountain into three regions, the lower, the middle, and the higher, has added a fourth, which he calls the region of ſnow; and each of the four regions he again ſubdivides into ſeveral diſtricts. I ſhall not diſpute with him theſe minute diſtinctions, which, whether they tend more to clearneſs or confuſion may be difficult to determine. I ſhall only make ſome brief remarks on his diſtrict of ſcoriæ, in the ſecond region, of which he ſays: "The diſtrict of ſcoriæ contains a ſurface of two miles entirely covered with pumices, aſhes, and ſcoriæ."

Without noticing the ſcoriæ and aſhes, I know not what he underſtood by *pumices*. The truth is, that Etna affords none, as Dolomieu, who ſo minutely examined the mountain, has expreſsly aſſerted; and, as I took nearly the ſame road with Borch, I muſt have met with them had they been ſo plentiful as he deſcribes. The Chevalier Gioeni, likewiſe, in his account of the products of the eruption of 1787, deſcribing one which, in its configuration reſembles the porous pumices of Lipari, remarks that this is the firſt time that Etna has ejected ſuch a kind of ſtone *.

In my journey to Etna, and on my return, at the ſame time that I examined volcanic objects I did not neglect to obſerve whether the two more elevated regions of the mountain were inhabited by animals. A little beyond Monte Roſſo, I bought five partridges (*Tetrao rufus Lin.*) of a ſportſman, who had ſhot them at the upper extremity of the middle region. Theſe I had roaſted at San Niccolo dell' Arena, and they furniſhed me with two good meals. In croſſing the ſame region I met with ſeveral birds of the titmouſe ſpecies (*Parus major; Parus cæruleus Lin.*), a kite (*Falco milvus*), three jays (*Corvus glandularius*), two thruſhes (*Turdus viſcivorus*); and ſeveral ravens and crows (*Corvus corax; Corvus corone*): half way up the higher region I ſaw no other animals, except ſome lion-ants (*Myrmeleon formicarum Linn.*) which made their pit-falls in the duſt of the lavas. There were ſeveral of them in a duſty corner of the Grotta delle Capre. As they live by enſnaring other ſmall animals, and eſpecially ants in the flip-

* Borch is not the only perſon who has fallen into this error. Sir William Hamilton, when he viſited Etna, found there no pumices; but he was told by the Canon Recupero of Catania that the mountain produced them: the Canon, however, it is well known, was unacquainted with the firſt principles of lithology. Baron Riedeſel, who, in this part of ſcience, was perhaps not ſuperior to the Canon, ſays that pumice is among the number of ſtones ejected by Etna; and joins with it the ſand-ſtone; a production which, according to thoſe beſt acquainted with the mineralogy of volcanos, is as much a ſtranger to Etna as the pumice. One of theſe writers may, probably, have induced M. Sage to aſſert that "Etna throws out a great quantity of pumices." This groſs error was probably occaſioned by the reſemblance which to perſons little acquainted with ſuch ſubſtances, ſcoriæ and cellular lavas appear to have to pumices.

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pery pits they form; it may be neceſſary to obſerve, that theſe are not wanting there, though I did not ſee them.

The city of Catania, during my ſtay there, amply afforded me the means of amuſement and inſtruction. The two Muſeums, the one belonging to the Prince di Biſcari, and the other to the Benedictine Fathers, beſides the various objects they contain relative to the arts and antiquities, are alſo furniſhed with a collection of natural productions, and will be found to correſpond to the great expectations that may have been formed of them from the advantageous deſcriptions of Riedeſel, Brydone, and Borch. That of the Prince is diſtinguiſhed by ſome rare ſpecimens which might adorn the richeſt and moſt extenſive collections. But in that city a third muſeum, hitherto little known, becauſe it is new, is beginning to flouriſh. It may be ſaid it is yet in its infancy; but the infant may become a giant. The poſſeſſor and founder of it is the Chevalier Gioeni. His firſt intention was to collect the moſt curious and intereſting productions of the Sicilian ſea; and he has ſucceeded admirably. We here find dry preparations of the fiſhes moſt remarkable for their form or the rarity of their ſpecies. Among the numerous families of zoophyta, the alcyonia, the antipathes, the cellulariæ, the eſcharæ, the pennatulæ, the ſertulariæ, the milleporæ, and the iſides (coral), are not wanting; but the madreporæ and the gorgonæ are the moſt conſpicuous for their beauty and rarity. It is equally well furniſhed with ſpecimens of the principal cruſtaceous animals of that ſea, but the numerous and choſen collection of thoſe of the teſtaceous kind is the principal ornament of the muſeum. With reſpect to theſe, we find a practice adopted we meet with in no other cabinet. As there are ſome extremely minute ſhells, in ſize not exceeding a grain of ſand, which it is impoſſible to view diſtinctly with the naked eye, they are as it were loſt in the greater part of other muſeums; but here they are placed, methodically diſtributed, at the bottom of ſmall tubes, at the other end of which is a lens; by the aid of which the eye is enabled to diſcover the beauty of the colours, the peculiarity of the involutions, the infinite variety of the forms, the windings of the apertures, the cavities, prominences, points, threads, &c. In fine, theſe points of organized matter, by this means, equally with the larger cruſtaceous animals, afford pleaſure to the eyes of the curious, and uſeful inſtruction to the learned, for characterizing the ſpecies.

The Chevalier Gioeni, in conſequence of his reſearches relative to theſe aquatic animals, has diſtinguiſhed himſelf by the diſcovery of a new genus of multivalve conchylia, which he has already made known; but he will do himſelf much more honour by the publication of a work on the ſubject on which he is now employed.

He has not confined himſelf to marine productions, but has extended his diligence to terreſtrial; and the neighbouring volcano has added to his collection. We here find ſpecimens of all the Etnean products; and amid the multitude of various lavas he has collected, he has diſcovered a new ſpecies, which he has denominated *fibrous*. The method he has adopted of placing the different lavas with the ſtones and primitive rocks, from which they derive their origin, is highly inſtructive.

Equally conducive to the advancement of knowledge is the numerous ſeries of teſtaceous foſſils, which he has collected with great labour to the north-eaſt of Etna, in a ſituation more than three hundred poles above the level of the ſea. Theſe extremely reſemble the natural which are now found in the neighbouring waters. But as the time when the ſea reached to that height is certainly anterior to the annals of hiſtory, of what great antiquity muſt the volcano be which exiſted before that epocha!

The productions of this part of Sicily are accompanied with thoſe of the reſt of the iſland. We find a noble collection of marbles and jaſpers, with various minerals, and cryſtallized ſulphurs.

Though this Muſeum deſerves great commendation for the multiplicity and choice of the objects collected within a few years, it perhaps deſerves ſtill greater praiſe for the accurate and judicious manner in which every part of it is ſyſtematiſed; a regulation extremely neceſſary in every collection, and which it is to be wiſhed might be introduced into the two other muſeums before mentioned.

I have been ſomewhat more diffuſe in my deſcription of this collection, becauſe it merited to be known to foreigners who, ſhould they chance to viſit Catania, may by its means procure information of various productions of Sicily and the neighbouring ſea, which they might elſewhere ſeek in vain.

The Chevalier Gioeni is profeſſor of natural hiſtory in the univerſity of his country, which can likewiſe boaſt of other men of genius, principally in polite literature. The natural ſciences, eſpecially thoſe which have relation to the foſſil kingdom, are not the moſt cultivated; leſs I believe from indiſpoſition towards them, than from want of encouragement. It is not the ſame with reſpect to the other two kingdoms. While I was at Catania, I had the honour to receive viſits from ſeveral perſons of learning; and I found that more than one of them had read with advantage the works of Bonnet, Buffon, and Duhamel. Among them may be diſtinguiſhed the Abbate Don Franceſco Ferrara, who afforded me the opportunity of examining the materials of the Torre del Filoſofo. The taſte for theſe extenſive branches of natural hiſtory muſt become greater, and ſpread more extenſively, from the laudable example ſet by Signior Ferrara, who has lately publiſhed in Sicily, *The Contemplation of Nature* of the philoſopher of Geneva (Bonnet): to which he has added, beſides my notes and thoſe of others, a great number of his own, replete with learning and good ſenſe, which muſt render ſuch a work ſtill more valuable.

VOLUME THE SECOND.

THE LIPARI ISLANDS.

INTRODUCTION.

The volcanization of these islands known to the ancients, and studied by several of the moderns.—A wide field for observation, nevertheless, left for others.—Felicuda, and Alicuda, two of these islands, first examined by the author.

THE Lipari islands are situated in the Mediterranean, between Sicily and Italy, and are called the Eolian isles, from Æolus their reputed king, but more generally the Lipari islands, from the name of the principal and largest. Though they were anciently known to be volcanic, and therefore were called vulcanian, it is only in modern times that their volcanization has been considered as an interesting object of the researches of the philosopher, who labours to promote the knowledge of nature. M. de Luc, Sir William Hamilton, and the Commendator Dolomieu, in this respect, particularly deserve notice.

The former of these naturalists, in the year 1757, visited Volcano, one of these islands, and made a number of observations; especially with respect to the principal circumstances relative to its extensive crater.

The same island, as well as that of Stromboli, exercised the curiosity of Sir William Hamilton; though he only saw it at a distance, as he was returning from Messina to Naples, in the year 1768. The accounts of these two writers will be related and examined in their respective places.

But much more complete and interesting, relative to volcanic enquiries, is the information we received from the Commendator Dolomieu, in his work entitled "A Voyage to the Lipari Islands *." The field, however, in which he laboured is so extensive and productive, that there is still room for new and abundant harvests. These islands are ten in number, and he remained there only eight days, circumstances perhaps not permitting him a longer stay. Some of them, it is true, are very small; yet others would require many weeks to examine them minutely. Among the latter is the island of Lipari, which is nineteen and a half Italian miles in circuit.

These considerations, therefore, far from causing me to abandon my design of visiting and examining these countries, rather increased my desire to carry my plan into execution; and the work of M. Dolomieu itself gave the last impulse to my determination. With a candour worthy of himself, he thus concludes his observations: "In the description I have given of the Eolian isles, I do not pretend that I have been able to point out every thing interesting which they contain, or entirely exhausted the subject; I rather hope that I shall excite other travellers, who have more time at their disposal, to examine them with attention; in which case, I can assure them, they will be rewarded with a much more abundant harvest than that I have reaped."

I shall conclude with adding that two of these islands, Felicuda and Alicuda, were not visited by this naturalist; and it was no small gratification to me to recollect that I was the first who had examined them. Wherever I have been preceded by M. Dolomieu, I shall not fail to notice it to the reader; and, while I relate my own observations, shall be careful to do justice to his discoveries.

* Viaggio alle Isole di Lipari.

CHAP. X.

CHAP. X. — STROMBOLI.

The fires of this volcano viſible by night at the diſtance of a hundred miles.—Their apparent intermiſſions.—Intermiſſions in the ſmoke ſeen by day.—Shoals of dolphins met with near this iſland.—Appearances obſerved in the ſmoke of the volcano, when ſeen at a ſmall diſtance.—Exploſions of the volcano.—The alterations in the volcano ſymptoms of the changes of the atmoſphere, according to the opinion of the people of Stromboli.—Signs of good and bad weather deduced from theſe alterations.—Obſervations on theſe prognoſtics, made by the author during a ſtay of five-and-thirty days.—Phenomena of the volcano obſerved at the diſtance of two miles from the crater.—Quality of the aſhes ejected at that time.—Quality and origin of the ſand which occupies a conſiderable part of the iſland.—Internal conſtructure of the iſland.—Conjectures that the crater of this volcano was anciently at the ſummit of Stromboli.—The iſland formed of a ſingle, but bifurcated mountain.—Incontrovertible teſtimonies that for more than a century the crater of this volcano has been ſituated towards the middle of the mountain.—Error of Sir William Hamilton in placing this crater at the ſummit.—The opinion, generally admitted, of the intermiſſions of the conflagration of Stromboli, probably not well founded.—The eruptions at that time much weaker than they frequently are.—The declivity of the mountain to the weſt the only place where the ejected matter falls into the ſea.—Abſurd reaſon aſſigned by the inhabitants of the Eolian iſles why that part of the ſea into which the ejected matter falls is never filled with volcanic ſubſtances.—Explanation of the author.—Deſcription of the road up the mountain towards the crater.—Height of Stromboli.—Hot acid-ſulphureous fumes near the ſummit, which have an internal communication with the volcano.—Remains of an ancient crater at the ſummit of Stromboli.—Appearance of the ejections ſeen from above.—Their perpendicular height.—Concluſive proofs that the volcano of Stromboli is not intermittent, as ſome travellers have aſſerted.—The cavity of the crater of this volcano probably not very deep.—Streams of ſmoke which iſſue from three ſeveral parts of the volcano.—The author ſucceeds in an attempt to approach nearer to the crater.—Phenomena which he obſerved in conſequence of this nearer approach.—Form and ſtructure of the crater.—Liquid lava within it.—Qualities of that lava.—The eruptions of Stromboli little, or not at all, intermittent.—Obſervations made by night within the crater itſelf.—An unexpected and terrible phenomenon.—Its explanation.

THE iſland of Stromboli is diſtant from Sicily fifty miles, and is the firſt of the Eolian iſles to the north-eaſt. It was called Στρογγόλη by the ancient Greeks, from its round figure, and was celebrated for its extraordinary volcano. Etna, Veſuvius, Hecla, and other burning mountains, rage at intervals, and vomit forth torrents of fire, but afterwards relapſe into a total inaction which continues ſeveral years, and ſometimes whole centuries; but the eruptions of Stromboli are continual, though not ſo continual but that, according to the accounts of all the modern travellers, they have ſometimes ſhort periodical intermiſſions.

I ſailed from Naples for Sicily on the 24th of Auguſt 1788; and the next night, having proceeded to a conſiderable diſtance beyond the ſtraits of Capri, I began to diſcover the fires of Stromboli, though at the diſtance of at leaſt a hundred miles. I obſerved a ſudden blaze, which feebly ſtruck my eyes, and after two or three ſeconds diſappeared. After ten or twelve minutes the flame again became viſible, and again diſappeared. I obſerved this phenomenon for ſeveral hours, and it only differed in its longer

longer or ſhorter duration, and the intervals between its appearances. The mariners with whom I ſailed teſtified conſiderable joy at the ſight of this fire, as they aſſured me that, were it not for the light it afforded in dark and ſtormy nights, they ſhould frequently be in danger of being ſhipwrecked at ſea, or running on ſhore on the neighbouring coaſt of Calabria.

When they arrived, and we had approached much nearer the volcanic iſland, the light of the ſun prevented the flame from being viſible; but a ſmoke appeared, which had nearly the ſame alternations with the fire before obſerved. As I was now, however, on my way to Meſſina, with intention to aſcend and examine Mount Etna, I ſoon loſt ſight of the volcano, which I propoſed afterwards to viſit, on my return from Sicily, when I ſhould take up my reſidence for a ſhort time in Lipari.

This deſign I carried into execution on the 1ſt of October, taking the advantage of a felucca which was returning to Stromboli. We ſailed early in the morning, a ſtrong ſouth-weſt wind blowing, and ſome clouds floating in the atmoſphere which appeared to threaten a tempeſt. The ſea was rough; but the wind being in our favour, the maſter of the felucca, who was at the ſame time our pilot, encouraged us againſt the fear of any accident, only telling us, in a jocular manner, that *we ſhould have a little dancing*. All the ſails were ſet, and we flew rather than ſailed over the ſurface of the ſea. Though the wind continually increaſed, and the ſea ran higher, ſo that we were ſometimes hanging on the pinnacle of a wave, and again plunged to the bottom of a yawning gulf, we had nothing to fear, as the gale was exactly in our ſtern; and in leſs than three hours we arrived at Stromboli, which is thirty Italian miles from Lipari, and anchored on the north-eaſt ſide of the iſland, where the body of the mountain breaking the force of the wind rendered the ſea ſomewhat more calm.

During a great part of this voyage we were accompanied by a number of fiſh, which appeared to attend us as an eſcort. Theſe were dolphins, which ſurrounded the ſhip, playing their gambols, and ſpringing ſometimes from the ſtern to the prow, and back again; then ſuddenly plunging under the waves, and as ſuddenly re-appearing, holding up their ſnouts, and throwing up the water to the height of ſeveral feet from the ſpiracles which they have in the head. On this occaſion I obſerved what I had never noticed before in any of the ſmaller fiſh of the cetaceous kind in other ſeas, I mean the incredible ſwiftneſs with which they ſwim and turn in the water. They would frequently dart from the ſtern to the ſtem of the ſhip, and, though they had to encounter the reſiſtance of the agitated waves, fly with the rapidity of an arrow.

But I return to obſervations of another kind, and ſuch as are relative to the principal object of this work.

As we advanced towards Stromboli, which was continually before me, I obſerved that its ſummit was covered with a very thick ſmoke, which extended to the brow of the mountain. I landed at nine in the morning, and eager to gain information relative to the volcano, without delay began to aſcend the mountain, till I arrived at the extreme edge of the ſmoke, which I wiſhed to examine with attention. This ſmoke, to all appearance, perfectly reſembled the clouds. In the lower part it was black and dark, and white and ſhining in the upper; from the former being penetrated with but little of the ſolar light, and the latter with a greater quantity. It was ſo thick that the ſun could not be ſeen through it. The upper part of it ſeparated into a number of globes, and various irregular and unuſual forms, which, according to the motion of the air, aſcended, deſcended, or took a circular courſe, becoming whiter and more irradiated by the ſun the higher they aroſe; all which appearances are obſervable in the clouds, eſpecially in the time of ſummer. This ſmoke, when it had reached a great height, became ſo thin

as to be no longer diſcernible by the eye. The ſulphureous acid it contained was extremely manifeſt, and ſo inconvenient to reſpiration, that I was obliged to return to the plain, not being able at that time to attempt a nearer approach to the volcano, from which dull and hollow exploſions were almoſt continually heard.

The remainder of the day I employed in interrogating the people of the iſland relative to their volcano, it appearing to me that no perſons could give me more information than thoſe who continually had the mountain before their eyes. The following were the accounts I received from them. When the north or north-weſt winds blow, the ſmoke is little in quantity and white, and the exploſions of the volcano very moderate; whereas the latter are louder and more frequent, and the former much more extenſive and black, or at leaſt dark, when the ſouth-weſt, ſouth-eaſt, or ſouth winds prevail; and ſhould any one of theſe three winds blow with violence, the ſmoke will ſometimes ſpread itſelf over the whole iſland, and darken it like heavy clouds in rainy weather. Should this cloud of ſmoke thus extend itſelf when the vines of Stromboli are in leaf, if it remains only a few hours, it will not injure them; but ſhould it continue a whole day, or longer, the grapes will not ripen, or at leaſt the vintage will be leſs productive. The ſmoke conſtantly has the odour of burning ſulphur, and conſequently is very diſagreeable and noxious.

This thick and copious ſmoke, which is commonly accompanied with more violent and frequent eruptions, not only is emitted while the ſouth, ſouth-eaſt, and ſouth-weſt winds blow, but precedes theſe winds ſeveral days. The people of the country are therefore enabled to foretel the winds which will be propitious or adverſe to mariners. They told me that not unfrequently veſſels which had anchored at Stromboli during the winter, and propoſed to ſail becauſe the ſea appeared calm and the weather favourable, had been induced to remain longer by the obſervance of theſe prognoſtics, which they had not found deceitful. The knowledge of theſe indications is not, however, the fruit of the modern obſervations of theſe iſlanders: it is extremely ancient *, and has been tranſmitted from the moſt remote ages to the preſent, from generation to generation, and will probably be delivered down in like manner to the lateſt poſterity. Æolus, who is ſaid to have reigned in theſe iſlands, is ſtyled in fable the King of the Winds, probably, as ſome writers have conjectured, becauſe, from the changes in the ſmoke and eruptions of the volcano, he was able to predict what winds would blow.

I ſhall here (if I may be allowed a ſhort digreſſion not unſuitable to my ſubject) relate the obſervations which I made relative to the connection between the phenomena of the atmoſphere and thoſe of the volcano, during the five-and-thirty days which I remained in the Eolian iſles; the ſmoke of Stromboli by day, and the flames by night, being clearly viſible in thoſe iſlands and the adjacent ſea.

Twice within that time, on the 13th of September and the 1ſt of October, the *Libeccio*, or ſouth-weſt wind, blew ſtrong. The firſt time no ſenſible change was obſervable in the volcano of Stromboli, though, according to the aſſertion of the people of the iſland, the ſmoke ſhould have collected thicker round the mountain, and the exploſions have become louder. The ſecond time, the appearances approached nearer to thoſe they deſcribe.

The *Scilocco*, or ſouth-eaſt wind, blew three times; on the 21ſt and 26th of September, and the 7th of October. This wind, if we believe the mariners of Stromboli, has a ſimilar effect on their volcano with the ſouth-weſt; and in fact, on two of the above-

* Thoſe who wiſh to know the predictions of the ancients, relative to the changes in the air and the ſea, deduced from the ſmoke and fires of Stromboli, may conſult the *Sicilia Antiqua* of Philip Cluverius.

mentioned days, while this wind blew, the eruptions were ſtronger, and the cloud of ſmoke more extenſive; but the third time theſe effects were not obſervable.

On the contrary, the north wind, which blew on the 11th and 12th of October, and which, according to theſe iſlanders, leaves the volcano at reſt, was preceded and accompanied by exploſions which were heard in the other iſlands, and by a large cloud of ſmoke which covered the half of Stromboli, and roſe with a white edge, like that we ſometimes obſerve in tempeſtuous clouds.

I muſt add, that ſometimes, though not a breath of wind blew, the eruptions were very copious, and the ſmoke was extremely thick.

Theſe obſervations render me not much inclined to receive implicitly all that the people of Stromboli ſo poſitively aſſert relative to their volcano; and the leſs, ſince the mariners of the other Eolian iſles are of a different opinion. When I was at Felicuda, where the eruptions of Stromboli may be very clearly ſeen by night, thoſe eruptions were very ſtrong, and almoſt continual, and every one was followed by an exploſion, which might be very diſtinctly heard in that iſland. I turned to one of the mariners of Felicuda, who ſtood near me, and aſked him what he thought of the prognoſtics of that volcano. He returned me the following brief ſententious anſwer: *Stromboli non fa marinaro.* Stromboli will not make a ſeaman. To determine, however, with certainty, whether there are any direct and immediate relations between the changes of the atmoſphere and thoſe of Stromboli, and what thoſe relations are, would require a ſeries of obſervations for ſeveral years, made on the ſpot by ſome intelligent and unprejudiced naturaliſt, and theſe we certainly have not.

I ſhall now proceed to relate what I obſerved relative to the volcano on the night of the 1ſt of October. My reſidence was in a cottage on the north ſide of the iſland, about half a mile from the ſea, and two miles from the volcano; but ſo ſituated that the cloud of ſmoke round the mountain ſcarcely permitted me to ſee the top of the fiery ejections. I employed more hours of the night in making my obſervations, than I permitted myſelf for repoſe; and the following is a brief ſummary of the principal appearances I noticed.

The ſouth-eaſt wind blew ſtrong. The ſky, which was clear, the moon not ſhining, exhibited the appearance of a beautiful aurora borealis over that part of the mountain where the volcano is ſituated, and which from time to time became more red and brilliant, when the ignited ſtones were thrown to a greater height from the top of the mountain. The fiery ſhowers were then more copious, and the exploſions which followed them louder, the ſtrongeſt reſembling thoſe of a large mine which does not ſucceed properly, from ſome cleft or vent. Every exploſion, however, ſlightly ſhook the houſe in which I was, and the degree of the ſhock was proportionate to the loudneſs of the ſound. I do not believe that theſe ſhocks were of the nature of the earthquake; they were certainly to be aſcribed to the ſudden action of the fiery ejections on the air, which ſtruck the ſmall houſe in which I was, in the ſame manner as the diſcharge of a cannon will ſhake the windows of the neighbouring houſes, and ſometimes the houſes themſelves. A proof of this is, that the fiery ſhowers always were ſeen a few ſeconds before the ſhock was felt; whereas the houſe was ſo near the volcano, that had it been a real earthquake, no interval of time would have been perceptible.

Before the morning roſe the fiery light over the volcano increaſed ſo much, at three different times, that it illuminated the whole iſland, and a part of the ſea. This light was each time but of ſhort duration, and the ſhowers of ignited ſtones were, while it laſted, more copious than before.

On the morning of the ſecond of the ſame month the ſouth-eaſt wind blew ſtronger than ever, and the ſea was greatly agitated. The ſmoke of Stromboli formed a kind of cap round the top of the mountain, which deſcended much lower than on the preceding day. The phenomena were the ſame; but the convulſions of the volcano were more violent. The exploſions were very frequent, but always with a hollow ſound; and the ejected aſhes reached the ſcattered dwellings of the people of the iſland. In the morning the ground appeared very plentifully ſprinkled with theſe aſhes, as they are called by the natives; but on examination I found that they were not properly aſhes, but very finely triturated ſcoriæ, conſiſting of very ſmall grains, of no determined form, dry, and rough to the touch, and which crumble into powder under the finger. They are not very far from a vitreous nature, in colour between a grey and a red, ſemi-tranſparent, and ſo light, that ſome will float on the water. Their levity proceeds from the great quantity of veſicles or pores which they contain, and which cauſes them, when viewed with the lens, to bear ſome reſemblance to the ſea production of unknown origin called favago *(favaggine)*.

The iſlanders aſſured me that theſe eruptions were very inconſiderable, compared with others which had formerly taken place, during which the aſhes had, in a few hours, formed a covering over the ground and the houſes of ſeveral inches thick; and the ſtones thrown out were ſcattered over the whole iſland, to the great damage of the vineyards and woods which were near the volcano, to which the flames communicated *.

As the day advanced, the hope I had entertained that I ſhould be able immediately to viſit the volcanic fires of Stromboli greatly diminiſhed; ſince I muſt have had to paſs a large tract of the mountain entirely covered with ſmoke, which had extended itſelf ſo widely through the air, that it darkened the whole iſland. I deferred, therefore, my intended journey till the next day, ſhould that prove more favourable, and employed myſelf in examining the principal productions of the place.

Wherever I placed my foot I found the whole ſhore, to the eaſt and north-eaſt, compoſed of a black volcanic ſand. This ſand is an aggregate of fragments of ſhoerls, as has been remarked by M. Dolomieu; but when we view it with the lens, we diſcover, beſides the ſhoerls, which are entirely opake, and are attracted by the magnet, a number of ſmall tranſparent and vitreous bodies, of a yellowiſh green tincture, and which are inſenſible to the magnet. I was doubtful whether theſe were likewiſe fragments of ſhoerls, but of a different ſpecies, or whether they were volcanic chryſolites; their extreme minuteneſs not permitting me to aſcertain their nature by any ſatisfactory experiment.

This ſand extends into the ſea, to the diſtance of more than a mile from the ſhore; as appeared from its adhering to the ſunken plummet, when it had been previouſly covered with tallow: probably it reaches to a ſtill greater diſtance.

The ſea eaſily penetrates through this ſand; for if any part of the ſhore be dug into a little depth ſea water is found, but rendered ſomewhat more freſh by having left a part of its ſalts in the ſand; as happens to the ſame water when it iſſues, drop by drop, through a long tube filled with ſand, through which it is filtred. The fiſhermen of Stromboli, when they are in want of freſh water, frequently dig wells on the ſhore, and drink the water theſe afford.

* Theſe ſhowers of ſand and pulverized ſcoriæ ſeem to be inſeparable from volcanic eruptions, and to be copious in proportion as the latter are violent. Of this we have an example in the eruption of Etna in 1787, when the ſand was carried as far as Malta. How great a ſpace was covered by the ſand ejected from Etna, in the eruption of 1669, has been already noticed. There is likewiſe no eruption of Veſuvius which is not accompanied by ſimilar ſhowers of ſand and aſhes.

This ſand, as has been already ſaid, occupies that part of the iſland which fronts the eaſt, and the north-eaſt, extending on the one ſide to the ſea, into which it ſtretches, and on the other to the ſummit of the mountain. It owes its origin partly to the immediate ejections of it by the volcano, and partly to the pieces of ſcoriaceous lava thrown out by the ſame, which being, as has been ſaid, extremely friable, and greatly abounding in ſhoerls, eaſily decompoſe and become pulverized in this ſandy matter. In fact, nothing is more uſual than to find in it fragments of this ſcoriaceous lava, of various ſizes. This ſand is found principally near the volcano, where both it and the ſcoriaceous lavas from which it is formed fall in the greateſt quantities; but as, from its fineneſs, it is eaſily moveable, it is carried by the wind to the vallies and lower grounds quite to the ſea.

This, however, is only the thin upper coating of thoſe parts of Stromboli which it covers, as under it lies the firm texture of the iſland; I mean the ſolid lavas, which are viſible on ſeveral ſteep deſcents, that have been ſtripped of the ſand either by the action of the rain-water, or that of the winds.

On the ſame day I made the circuit of a great part of the baſe of the iſland, which is about nine miles in circumference, and found the ſame ſolid conſtructure; a ſmall tract of tufa on the north ſide excepted, which deſcends to the ſea.

In this excurſion I carefully examined the courſe and direction of the lavas, and was convinced that they all had flowed from the ſteepeſt ſummit of the mountain, under different angles of inclination, paſſing one over another, and thus forming a ſucceſſion of cruſts or ſtrata, like, in ſome meaſure, the coatings of which an onion conſiſts. In ſeveral places where the lava has entered the ſea, theſe cruſts may be ſeen lying one over the other, ſome of them broken or ſeparated by the ſhock of the waves.

Theſe facts ſtrongly induced me to ſuſpect that the crater of Stromboli had anciently been ſituated on the ſummit of the mountain, and that the lavas which had principally contributed to the production of the iſland had flowed from that crater.

On the ſides of Etna and Veſuvius mountains of an inferior order ariſe, which likewiſe owe their origin to fire: Stromboli, on the contrary, is entirely a ſingle mountain, except that its top is divided into two ſummits. Hence it appears that there have been none of thoſe eruptions in its ſides, which generate leſſer mountains or hills, of a conical form.

But this crater, which I conjecture, and ſhall hereafter prove actually to have exiſted, has long ſince given place to that which at preſent burns. Among the various enquiries which I made of the inhabitans of Stromboli, I interrogated them with reſpect to the preciſe ſituation in former times, as far as they had heard or could remember, of that burning gulf which throws out fire and red-hot ſtones; and they all agreed in aſſuring me that they had never known it in any other place but that in which it now is, that is to ſay, about half way up the mountain.

I lodged with a prieſt who was now approaching the decline of life, who not only confirmed this account, but adduced the authority of his father, who had died at the age of eighty, and who had told him that he had heard, from perſons older than himſelf, that in their time the ſituation of the burning furnace was the ſame as at preſent.

About a mile from the mouth of the volcano lives a peaſant, who from his cottage can diſtinctly ſee every burning eruption; and though he frequently feels no little alarm, when the fragments of lava are thrown quite to his doors, and the fire reaches his little vineyard, yet, from long habit, and love for the place of his birth, he ſtill continues to reſide there. When I aſked this man what was the ſituation of the burning cavern in former times, he returned me the ſame anſwer I had received before; alleging, in confirmation of its truth, the teſtimony of his anceſtors who had reſided on the ſame ſpot. And as to the

ſhowers of ejected matter, all of whom I enquired unanimouſly aſſured me that they had always ſeen them ſuch as they at preſent appear, except that they might be ſometimes ſtronger and ſometimes weaker.

All theſe teſtimonies appear ſufficiently to prove that the volcano of Stromboli has burned for more than a century where it now burns, without any ſenſible change having taken place in its ſituation.

I ſhall here make a few remarks on the account which Sir William Hamilton has given us of Stromboli, agreeable to my promiſe in the introduction to this volume.

He tells us, that on his return from Meſſina to Naples he met with a calm while among the Lipari iſlands, which laſted three days. "Hence," ſays, he "I had an opportunity clearly to aſcertain that all theſe iſlands have been formed by eruptions. That which is called Volcano, is in the ſame ſtate in which Solfatara now is. Stromboli is a volcano which has preſerved its vigour entire, and conſequently a form more pyramidal than the reſt of the iſlands. We frequently ſaw burning ſtones thrown from its crater, and lava iſſuing from the ſides of the mountain, flow down into the ſea."

This deſcription is accompanied by a plate, which is the thirty-ſeventh plate of the Campi Phlegræi, and repreſents the mountains of Stromboli. In it the crater is repreſented at the ſummit, throwing out flames and ignited ſtones; and on the ſides are ſeen ſtreams of liquid lava deſcending into the ſea. That the obſervations of this reſpectable naturaliſt on volcanos merit the moſt attentive conſideration, the work I have cited furniſhes numerous and inconteſtable proofs: that impartiality, however, which ought to be inſeparable from philoſophy, compels me to declare that what he has ſaid of this mountain is not exactly conſonant to fact. From the time of his obſervations to that of mine, only twenty years have elapſed. If, therefore, the crater of Stromboli had then been at the ſummit of the mountain, and had it thrown out thence its ſhowers of fiery matter, the inhabitants of the iſland would ſurely have remembered the fact when I was there: but when I told them that, twenty years before, the burning gulph of their mountain was not ſituated half way up its ſide, but at the top, they all poſitively aſſerted that this muſt be a miſtake.

The ſame they affirmed of the aſſertion that lava had iſſued from the ſides of the mountain, and flowed down into the ſea; when, to hear their anſwer, I told them that this had been obſerved at the ſame time. Indeed, it ſeems very extraordinary that I ſhould never have met with any traces of theſe currents of lava, though I ſo carefully examined the iſland.

I am of opinion that Sir William fell into theſe errors from not having landed at Stromboli, but only viewed it at ſea at a diſtance, where he might eaſily be deceived by ſome illuſion of ſight. In fact, had he landed, it is not to be doubted but he would have mentioned it. That he made his obſervations at ſome diſtance from the iſland is ſufficiently indicated by theſe words: "Stromboli is a volcano which has preſerved a form more pyramidal than the reſt of the iſlands." When Stromboli is ſeen at a diſtance it certainly appears of this pyramidal, or more properly conical form, much more than when ſeen near; for then it appears bifurcated, nearly ſimilar to Monte Roſſo, on one of the ſides of Mount Etna.

The diſtance has likewiſe rendered him inaccurate relative to the iſland of Volcano. Had he landed there and examined the place, he would not have compared it to Solfatara. We ſhall ſee in Chap. XIV. of this Work, the difference of the ſtates of the two volcanos.

The figure, more or leſs conical, of the Eolian iſles, as ſeen from the ſea, while Sir William ſailed among them, the ſmoke which he ſaw riſe from ſome, and the fiery eruptions

tions of others, ſuggeſted to him, I imagine, the idea that "they have all been formed by eruptions," as he has not adduced a ſingle local fact in ſupport of that opinion.

On the 2d of October I made the obſervations I have already related, at the foot and the lower part of the ſides of Stromboli. The following night the volcano exhibited phenomena ſimilar to thoſe of the preceding, and the next day (the 3d) proved favourable to my wiſhes to approach nearer to the burning crater. It now ſmoked but little, and only a few exploſions, and thoſe ſcarcely audible, were heard. The ſky was free from clouds, and the ſea calm.

The crater may be approached by two ſeveral ways; either by taking a boat, and obſerving it from the ſea; or by land, paſſing the top of the mountain, and proceeding as near as poſſible to the edges of the crater. I reſolved to obſerve it, firſt from the water, taking advantage of the calm which then prevailed, as I well knew how frequently that ſea is violently agitated by tempeſtuous winds.

After having coaſted the iſland the diſtance of three miles and a half towards the north, I arrived oppoſite the place where the ſhowers of ignited matter fall into the ſea. The ſide of the mountain is here a ſteep declivity, almoſt perpendicular, about half a mile broad at the bottom, and a full mile long, terminating above in a point, and forming an iſoſceles triangle, the baſe of which is waſhed by the ſea. The apex of the triangle is at the brink of the crater. Before I reached the ſteep declivity, I obſerved a great cloud of duſt extending along it, of which I could not aſſign the origin; but on a nearer approach I diſcovered the ſecret. It was evidently produced by pieces of lava, of various ſizes, which rolled down, and in their deſcent raiſed the fine ſand with which this declivity is covered.

While I was intently obſerving this object, the mountain ſuddenly made an exploſion. A quantity of pieces of lava, of a dark-red colour, enveloped in ſmoke, were ejected from the top of the precipice, and thrown high into the air. A part of them fell again upon the declivity, and rolled headlong down, the ſmaller preceded by the greater, which after a few long bounds daſhed into the ſea, and on entering the waves, gave that ſharp hiſſing ſound which, in a leſſer degree, is produced by a bar of red-hot iron which a ſmith plunges in the water. The leſſer fragments of lava followed, but from their lightneſs and the hindrance of the ſand, rolled ſlowly down the declivity, which was then obſcured by a ſmall cloud of duſt; and ſtriking againſt each other produced nearly the ſame ſound as is occaſioned by large hailſtones falling on the roofs of houſes. In a few moments after another exploſion followed; but this was a ſmall one, without any ſenſible noiſe, and the few pieces of lava that were thrown up roſe to but a ſmall height, and fell back into the crater. Two minutes after a third eruption took place, with a much louder exploſion than the firſt, and a far more copious ejection of lava. The eruptions which I afterwards obſerved, and which were innumerable in the ſpace of three hours that I continued there, exhibited the ſame appearances.

Theſe obſervations cauſed me to doubt of the truth of an opinion to which I had inclined before my arrival in the iſland. I mean the periodical intermiſſions which travellers aſcribe to the eruptions of Stromboli, and which I ſuppoſed I had obſerved in the night in my voyage from Naples to Sicily. When from the bottom of this precipice I had the volcano and its fiery hail before my eyes, I do not indeed mean to affirm that it continually raged and thundered equally; but the intermiſſions between its ejections were ſo ſhort that they rarely exceeded three minutes, though by the accounts of theſe travellers they are conſiderably longer. Yet was I willing ſtill to ſuſpend my judgment, until I ſhould have had a nearer view of the crater on the mountain itſelf.

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The following night I returned to the ſame place, perſuaded that I ſhould ſee new objects to excite my admiration; and in fact, the ſcene I beheld appeared to me as delightful and aſtoniſhing, as it was noble and majeſtic. The volcano raged with more violent eruptions, and rapidly hurled to a great height thouſands of red-hot ſtones, forming diverging rays in the air. Thoſe which fell upon the precipice, and rolled down it, produced a hail of ſtreaming fire, which illuminated and embelliſhed the ſteep deſcent, and diffuſed itſelf around through a conſiderable ſpace.

But, independent of theſe ignited ſtones, I remarked a vivid light in the air, which hovered over the volcano, and was not diminiſhed when that was at reſt. It was not properly flame, but real light reverberated by the atmoſphere, impregnated by extraneous particles, and eſpecially by the aſcending ſmoke. Beſides varying in its intenſity, it appeared conſtantly in motion, aſcended, deſcended, dilated, and contracted, but conſtantly continued fixed to one place, that is, over the mouth of the volcano, and clearly ſhewed that it was cauſed by the conflagration within the crater.

The detonations in the greater eruptions reſembled the diſtant roar of thunder; in the more moderate the exploſion of a mine; and in the leaſt they were ſcarcely audible. Every detonation was ſome ſeconds later than the ejection. This likewiſe was obſervable by day.

I remained that night two hours on the water at this place, and the eruptions were ſo frequent, and with ſuch ſhort intermiſſions, that they might be ſaid to be continual.

During both theſe viſits thick ſhowers of ſand and fine ſcoriæ fell into the ſea, and falling on my hat, which was of oil-cloth, made a noiſe like a ſmall hail.

The five ſailors who had the care of the boat in which I was, and ſome other natives of Stromboli who were with me, and whoſe occupation frequently brought them to that part of the ſea, told me that the volcano might now be conſidered as very quiet; aſſuring me that in its greater fits of fury red-hot ſtones were frequently thrown to the diſtance of a mile from the ſhore, and that conſequently at ſuch times it was impoſſible to remain with a boat ſo near the mountain as we then were. Their aſſertion appeared to me ſufficiently proved by a compariſon of the ſize of the fragments thrown out in the exploſions I now witneſſed, with that of thoſe which had been ejected in ſeveral former eruptions. The firſt (many of which had been ſtopped at the bottom of the precipice by other pieces of lava, and were ſcoriacious lavas, approaching to a globoſe form) were not more than three feet in diameter; but many of the fragments thrown out at other times, of ſimilar quality to them, and which lay in large heaps on the ſhore, were ſome four ſome five feet in diameter, and others even ſtill larger.

Travellers have generally aſſerted that the volcano of Stromboli has for a long time diſcharged its fury into the ſea, without cauſing either alarm or injury to the inhabitants of the iſland. The eruptions, however, fall equally on every ſide around the volcano; though at this place they only fall into the ſea, and in that ſenſe their aſſertion is well founded.

But the people of Stromboli, and indeed almoſt all the inhabitants of the Eolian iſlands, entertain an opinion, equally amuſing and paradoxical, by which they explain why that part of the ſea which is contiguous to the precipice is never filled up, notwithſtanding the immenſe quantities of ſtones which have been continually falling into it from time immemorial; where, inſtead of a peninſula having been formed by thoſe ſtones, as might naturally have been expected, the ſea is generally ſaid to have no bottom. To explain this apparent paradox, theſe good folks affirm, with the moſt entire conviction that what they ſay is true, that the ſtones of the volcano which fall into the ſea are attracted again by the mountain through ſecret paſſages; ſo that there is a conſtant circulation from the volcano to the ſea, and the ſea to the volcano.

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I did not attempt to controvert their favourite hypotheſis, which would have been to no advantage, and to no avail; but I cauſed that part of the ſea to be ſounded, and and found it a hundred and twenty-four feet deep, which, though it is not a great depth in the Mediterranean, is certainly, in this place, ſomewhat ſurpriſing; as it was rather to be expected that the continual diſcharge of ſtones into it ſhould have produced a little hill, which would at laſt have emerged above the waves.

Thinking this an object deſerving ſome inquiry, I determined to make my obſervations on the ſpot, and I flatter myſelf I have diſcovered the true explanation of the difficulty. The ſtones which have formerly been thrown into the ſea by Stromboli, and and thoſe which that volcano ſtill continues to eject, are of the ſame kind; that is, as I have already ſaid, ſcoriaceous lava. Theſe, from their being porous and little cohering in their internal ſtructure, eaſily crumble, and are converted into ſand, as is ſeen on the eaſt and north-eaſt parts of the iſlands; and this ſeparation of parts is produced by the ſimple action of the elements of air and water, and the rolling of the pieces over each other in their deſcent. A ſimilar trituration is effected at the place where the lava falls into the ſea. The ſteep deſcent I have ſo frequently mentioned is covered with this pulverized lava quite to the ſea-ſhore. A part, therefore, of the ſcoriæ is already reduced to powder before it touches the water; and the remainder, which falls into the ſea in whole pieces, muſt ſoon undergo the ſame trituration, from the action of the waves which beat ſo violently in various directions.

I muſt here repeat that the ſea which ſurrounds the iſlands of Lipari, and eſpecially that part of it which waſhes Stromboli, is ſubject to very frequent and very violent ſtorms. The two times that I obſerved the volcano from the ſea, near the precipice, though it was what the ſailors called a perfect calm, our boat was ſo toſſed that it was neceſſary to make uſe of the oars to prevent its being carried from the place. This agitation of the water, likewiſe, extends here to a conſiderable depth, as is ſufficiently proved by ſeveral obſervations. The inhabitants of Stromboli, beſides nets, make uſe of wheels, or a kind of wicker traps, to catch fiſh. Into theſe they put ſtones, and ſink them to the bottom, leaving a ſort of floating buoy to point out where they lie; but to prevent their being carried away by the waves, in a ſtorm, it is neceſſary that they ſhould be ſunk to the depth of a hundred and forty feet; otherwiſe they would be daſhed againſt the rocks under the water, and loſt. As the depth, therefore, of that part of the ſea into which the ſcoriæ fall is leſs than this, that is, only a hundred and twenty-four feet, they muſt, by the ſhocks of the tempeſtuous waves, no doubt, be ſoon broken, reduced to ſand, and carried away by the violence of the current. It is not, therefore, ſo extraordinary, as it may at firſt view appear, that this part of the ſea ſhould be ſcarcely ever filled by the ſcoriaceous lava which is continually falling into it.

I have ſaid, *ſcarcely ever*, becauſe I was told, by ſome of the people of Stromboli, that about forty-four years ago the volcano threw out ſuch an immenſe quantity of ſcoriæ, that it cauſed a dry place, to uſe their expreſſion, in the ſea. A kind of hill roſe above the waters, which remained from March to the following July, when it gradually diminiſhed, by the action of the waves, and at laſt diſappeared. The hill was formed preciſely in that place where, according to the popular report, the ſea has no bottom. This fact not only is agreeable to the hypotheſis I have offered, but is a ſtrong confirmation of its truth.

The obſervations I had been able to make on the volcano from the ſea appeared to me intereſting and inſtructive; but I flattered myſelf, that more of its ſecrets would be revealed to me, if I made a nearer viſit to it, over the mountain itſelf. The way thither lay on the eaſt ſide of the iſland, it being impoſſible to approach it from the ſea, both from

from the inceſſant ſhowers of heated ſtones, and the inſuperable precipices on both ſides of the ſteep and almoſt perpendicular declivity. I began this journey on the 4th of October, and was much encouraged by the ſtate of the volcano, to hope I ſhould ſucceed according to my wiſhes, as ſcarcely a ſhade of ſmoke covered the higheſt points of the iſland. To arrive there it was neceſſary to make a journey of a mile and a half, reckoning from the ſea-ſhore. The firſt mile is not diſagreeable, but the remainder of the way, though not dangerous, is very difficult; both from the extreme ſteepneſs of the aſcent, from the impediment of the ſand, in which the leg ſinks almoſt up to the knee at every ſtep, and from the looſe and moveable ſcoriæ, which render the ſummit of the mountain extremely rugged and ſlippery.

Having reached this ſummit, I found myſelf on one of the two points which render Stromboli bifurcated, though, when viewed at a diſtance it appears conical. This ſummit is ſituated to the north-eaſt; the other, which is ſomewhat higher, inclines to the ſouth-weſt. As nearly as I could eſtimate it, the altitude of the latter above the ſea was about a mile.

To paſs from one ſummit to the other, we go over an extenſive plain, which appeared to me to deſerve the moſt attentive examination. We firſt obſerve white fumes, which ariſe from five apertures, not very diſtant from each other. Theſe fumes have a ſtrong ſulphureous odour, and, gliding along the ground, are inſufferable from their extreme heat. The five apertures appear ſprinkled over with ſmall cryſtals of ſulphur, and muriate of ammoniac (ſal-ammoniac). The ground here is a mixture of ſand and ſcoriæ; and the ſand, as well below as on the ſurface, is moiſt, which may ariſe from two cauſes, either from the ſubterraneous waters being raiſed in vapour by the volcanic fire, as water conſtantly accompanies burning volcanos; or from the union of the acid of ſulphur with the humidity of the atmoſphere.

The ground in the vicinity of theſe fumes is very hot; and wherever a hole is made with a ſtick, a new ſtream of ſmoke ariſes, which is not fugitive but durable. If you ſtamp with the foot, a feeble kind of echoing ſound is heard, which I do not imagine to be occaſioned by any ſubjacent gulf or abyſs, but only from the very looſe contexture of the ground, which is only compoſed of ſand and very porous ſcoriæ; in the ſame manner as in ſeveral parts of the Apennines, where the ground is light and looſe, I have heard the ſame kind of ſound on ſtamping with the foot. I am, therefore, of opinion, that this hot fuming ground has a communication with the volcano, by narrow winding cavities which afford a paſſage to the vapours.

Proceeding to the weſt, over the plain which extends between the two ſummits, another object arreſts ſtill more the attention of the obſerver. The ſummits themſelves have no crater, nor any veſtiges of one; but theſe veſtiges are ſufficiently evident on the ſides of the plain; which here ſinks into a cavity, which may be about three hundred feet in length, from eaſt to weſt, above two hundred in breadth, and one hundred and ſixty in depth. The bottom is covered with ſand and ſcoriæ, not of a very ancient date, but the produce of the ejections of the preſent volcano. The internal ſides of the cavity, however, are not of theſe materials; they are formed of ſtratas of lava which bear the moſt evident marks of the higheſt antiquity. I am, therefore, of opinion that this was the firſt and largeſt volcano of Stromboli, which formed the contexture of the iſland by its lavas, and which, in a great degree, had been filled up and deſtroyed by the earthy depoſitions of the rain-waters, the matter ejected into it by the preſent volcano, and, perhaps, by the falling in of its own ſides. This opinion is confirmed by the direction of the lavas, all of which appear to have deſcended from the centre of the ſummit; and this direction, when I examined the lower parts of the iſland,

iſland, induced me to conjecture that the principal volcano had formerly exiſted on the ſummit.

Theſe remains of an ancient crater lie between two points of the mountain which were probably formed when the lava guſhed forth, in the ſame manner as the volcano of Monte Roſſo formed two diſtinct hills. The bottom of this higher and more ancient crater of Stromboli, in two places, emits fumes, which do not differ in their quality from thoſe that have been mentioned above.

From theſe two ſummits the ejections of the preſent crater are diſtinctly obſervable, as it is not diſtant more than half a mile to the north; and we there evidently perceive that it lies about half way up the mountain, the edges obſcurely projecting, and forming a cliff. Here I was better able than on the ſea to eſtimate, by the eye, the height to which the ejected matter aſcends; and can affirm that, in the more violent eruptions, it riſes to the height of half a mile, or even higher, as many of the ignited ſtones were thrown above the higheſt ſummit of the mountain. They did not, however, reach me, but fell, partly on the precipice which deſcends to the ſea, and partly into and around the crater. The ejections, indeed, which I call the moſt violent, were certainly very moderate, compared with thoſe which the two natives of Stromboli who ſerved me as guides, aſſured me they had witneſſed, at other times, from that ſummit, when, as they ſaid, we ſhould not have been ſafe at the diſtance and height at which we were; and the numerous ſcoriæ around us, the produce of former eruptions, fully confirmed the truth of what they aſſerted. They likewiſe deſerved attention when they affirmed that, at thoſe times, the ſtones were thrown to more than a mile in height.

From the ſummit of Stromboli I deſcended about a quarter of a mile down the mountain towards the volcano, and took my ſtation on an eminence where I had a much more diſtinct view of the crater, and every eruption; and was more than ever convinced that the intermiſſions which have been ſo frequently and poſitively aſcribed to it do not exiſt. The exploſions ſucceeded each other with ſuch rapidity, that there was rarely the interval of three or four minutes between any two. They, however, differed greatly in their ſtrength, which has probably occaſioned the miſtake of travellers relative to the intermiſſions of Stromboli. The higheſt ejections, as I have already ſaid, did not riſe leſs than half a mile in height; while the loweſt did not reach the height of fifty feet, and the matter fell back into the crater. Between the greateſt and the leaſt there were ejections without number; and the intenſity of the ſound correſponded to the quality of the ejection. At a conſiderable diſtance from the volcano the moderate and ſmaller eruptions, with their accompanying detonations, were not perceptible, but the greater only; which not being ſo frequent, may eaſily induce us to form the falſe opinion that this burning mountain has conſiderable intervals of repoſe. But when we approach nearer, we diſtinctly perceive the difference of the ejections, and the error of ſuch a ſuppoſition. Nor can the fact I obſerved be conſidered as accidental, ſince the two guides I took with me, who are accuſtomed to conduct ſtrangers to this place, as well as other natives of Stromboli, who frequently paſs that way to cut wood, all agreed that the eruptions of this volcano are continual though they are ſometimes ſtronger and ſometimes weaker.

At a diſtance, there was a very perceptible interval between the appearance of the eruption and the detonation; but here, the difference of time between them was ſcarcely any. The fragments of lava, as they flew, produced a hiſſing ſound; and many of them acquired in the air a globoſe figure, an evident proof of their fluidity; but before they came to the ground they were hardened, retaining the ſame figure, while they bounded down the cliffs and precipice. From the little eminence on which I ſtood I could in part

diſcover the internal ſides of the crater, though I could not ſee far into it; but appearances ſeemed to indicate that it could not be very deep; for, attentively obſerving the fragments of lava that fell again immediately into the crater, I remarked that almoſt as ſoon as they had entered it I heard the ſound produced by their colliſion againſt the ſubſtance on which they fell. This ſound reſembled that which would be cauſed ſhould water, or rather ſome denſer fluid, be ſtruck with a number of ſtaves or poles. But of this phenomenon, and others more deſerving notice, I ſhall treat preſently more at length, when I come to ſpeak of other ſecrets of the volcano which were diſcloſed by a nearer approach.

Here it is proper to notice the fumes which exhale from this mountain, as they have an immediate relation to the volcano. Though when I obſerved them from the ſea they appeared to me of little importance, when I ſaw them from the ſummit and body of the mountain they exhibited a thick cloud, ſeveral miles in length, exhaling a ſtrong ſmell of ſulphur, which, however, was not incommodious to me, as they were raiſed ſeveral poles above the ſurface of the ground. This cloud entirely obſcured the ſun, was black in the middle, but whitiſh at the edges, and more or leſs clear according to the different inclinations, refrangencies, and reflections of the light. It appeared to me that this immenſe maſs of ſmoke extended more than a mile in height. Though it continually iſſued in a conſiderable quantity, its volume did not increaſe, ſince as much was diſſipated in the upper regions of the air, as roſe from the earth. It derived its origin from a threefold ſource. Firſt, as often as the crater threw up ſtones, a cloud of grey ſmoke immediately aroſe, which was thick in proportion as the ejection was violent and copious. Secondly, to the weſt of the crater, and at a little diſtance from it, are ſome obſcure apertures, through which ariſe, like white clouds, not leſs than a hundred and fifty ſtreams of ſmoke, which, though they are diſtinct at firſt, mingle as they riſe, and form one cloud.

Laſtly, to the eaſt of the crater, there is a large and deep cavern from which aſcends a column of dark and very thick ſmoke, about twelve feet in diameter, which at that time, from the ſtillneſs of the air, aroſe perpendicularly, moving in large circles through a conſiderable ſpace, and afterwards inſenſibly rarefying as it removed to a diſtance. This cavern while I was there threw out no ſtones, nor had it ever been known to do ſo, as my guides aſſured me, though it had always emitted a prodigious quantity of ſmoke. The cauſes, therefore, of this ſmoky cloud were theſe three, of which the firſt and third are continual, and the ſecond acts as often as the crater ejects its burning matter: nor can there be any doubt that they are all three connected with the volcanic gulph which makes its greateſt diſcharge from the mouth of the crater, and a much ſmaller from each of the ſides.

Not ſatisfied with the obſervations I had already made, my curioſity impelled me to attempt further diſcoveries. From the pointed rock on which I ſtood, I could only ſee the edges of the inſide of the crater. I conſidered, therefore, whether it might not be poſſible to obtain a ſight of the lower parts likewiſe; and, looking round me, I perceived a ſmall cavern, hollowed in the rock, very near the gulph of the volcano, into which the rock above prevented the entrance of any burning ſtones, ſhould they be thrown ſo far. It was likewiſe ſo elevated, that from it the crater was open to my view. I therefore haſtened to take my ſtation in this cavity, taking advantage of one of the very ſhort intervals between the eruptions. To my great ſatisfaction, my expectations were completely fulfilled; I could here look down into the very bowels of the volcano, and Truth and Nature, I ſaw, as it were, unveiled before me. The following is the deſcription of the objects which preſented themſelves to my wondering eyes.

The edges of the crater, which is of a circular form, and not more than three-hundred and forty feet in circumference, are compoſed of a confuſed mixture of lavas, ſcoriæ, and ſand. The internal ſides contract as they deſcend, and aſſume the ſhape of a truncated inverted cone. Theſe ſides, from the eaſt to the ſouth, have only a gentle declivity, but in the other parts, they are very ſteep. In many places, they appeared incruſted over with yellow ſubſtances, which I imagine to be the muriate of ammoniac (ſal ammoniac) or ſulphur.

The crater, to a certain height, is filled with a liquid red-hot matter, reſembling melted braſs, and which is the fluid lava. This lava appeared to be agitated by two diſtinct motions; the one inteſtine, whirling, and tumultuous; and the other, that by which it is impelled upwards. This motion in particular merited to be examined with attention. The liquid matter is raiſed, ſometimes with more and ſometimes with leſs rapidity within the crater, and when it has reached the diſtance of twenty-five or thirty feet, from the upper edge, a ſound is heard not unlike a very ſhort clap of thunder; while at the ſame moment a portion of the lava, ſeparated into a thouſand peices, is thrown up, with indeſcribable ſwiftneſs, accompanied with a copious eruption of ſmoke, aſhes, and ſand. A few moments before the report, the ſuperficies of the lava is inflated, and covered with large bubbles; ſome of which are ſeveral feet in diameter, which bubbles preſently burſt, and, at the ſame inſtant, the detonation and fiery ſhower take place. After the exploſion, the lava within the crater ſinks, but ſoon again riſes as before, and new tumours appear, which again burſt and produce new exploſions. When the lava ſinks, it produces little or no ſound; but when it riſes, and eſpecially when it begins to be inflated with bubbles, it is accompanied with a ſound, ſimilar, in proportion to the difference of magnitude, to that of a liquor boiling vehemently in a caldron.

I remained in this cavity, which ſo conveniently ſheltered me from danger, an hour and a quarter; during which time, beſides the obſervations I have already ſtated, I was enabled to make the following:

Every ejection, however ſmall, was not only accompanied by an exploſion, but was proportionate to it in its intenſity. Hence, as the ſtones which are only thrown to the height of ten or twenty yards above the crater, are not viſible to the eye at a diſtance, ſo neither is the detonation, by which ſuch ejections are accompanied, ſenſible to the ear.

In the ſmaller and moderate ejections, the ſtones fell back into the crater, and at their colliſion with the fluid lava produced, as, I have already ſaid, a ſound ſimilar to that of water ſtruck by a number of ſtaves; but in the greater ejections, a conſiderable quantity of them always fell without the mouth; though that lying low, and ſurrounded with heights, the greater part of them rolled again into it. Here, however, we muſt except that ſide of the crater which lies immediately over the precipice before deſcribed, ſince there every ſtone which fell without the crater bounded down the declivity, and deſcended to the ſea. When I viewed this precipice from the water, it appeared to me to terminate in a point; but here I diſtinctly perceived, that, where it reached the volcano, it was more than ſixty feet in breadth.

The redneſs of thel arger ignited ſtones, (which were only pieces of ſcoriaceous lava,) was viſible in the air, notwithſtanding the light of the ſun. Many of them claſhed againſt each other and were broken, which happened only when they were at a certain height; for, when they were nearer to the volcano, they frequently adhered, on touching each other, in conſequence of the fluidity they retained. The lava of the crater, when it roſe or fell, emitted but little ſmoke; but a great quantity when it exploded.

The ſmoke iſſued from its fiſſures, but almoſt immediately diſappeared after the exploſion. It might be compared to the ſmoke produced by the firing of gunpowder, and which appears and diſappears with the flaſh. This ſmoke appeared to me extraneous to the lava; at leaſt, the fragments of the latter neither ſmoke as they fly in the air, nor after they have reached the ground.

In conſequence of the alternate riſing and ſinking of the lava, according as it is inflated or makes its diſcharge, the depth of the crater cannot be conſidered as conſtant. When the lava is at its height, it may be about five and twenty or thirty feet deep, and when it has ſubſided, about forty or fifty; the greateſt riſing of the lava may, therefore, be eſtimated at about twenty feet.

If we attentively examine the edges of the crater, we can diſcover no ſigns that the lava has ever overflowed the brink, much leſs that it has poured a torrent down the ſteep ſide of the mountain.

Though the ejections of the larger and heavier ſtones have ſhort intermiſſions, thoſe of the leſſer and lighter have ſcarcely any. Did not the eye perceive how theſe ſhowers of ſtones originate, it would be ſuppoſed that they fell from the ſky: the noiſe of the more violent eruptions reſembling that of thunder, and the darkneſs occaſioned by the mounting cloud of ſmoke, preſent the image of a tempeſt.

Such were the phenomena of the volcano of Stromboli, which I obſerved with the utmoſt convenience from the ſtation I have deſcribed. Though it is impoſſible perfectly to pourtray ſuch aſtoniſhing ſcenes by any drawing; the repreſentation I have given in the plate of a part of Stromboli, may enable the reader to form a more adequate idea of the principal objects.

In this plate A A A repreſents the vaſt column of ſmoke which, to the eaſt of the mountain, iſſues from a deep and ſpacious cavern, moving directly upward. B B B, the numerous ſtreams of ſmoke ariſing on the oppoſite ſide, above which I am myſelf repreſented, ſtanding in the cavity of the rock which I have deſcribed, and looking down on the ſhowers of fiery matter ejected from the mouth of the crater, which has an opening in front to afford a view of the internal parts of the crater and the fiery ejections. A part of the latter are repreſented as falling at the top of the precipice which joins to the edges of the volcano, down which they bound, and precipitate into the ſea.

To the appearances already deſcribed, which I obſerved by day, I ſhall add others that preſented themſelves by night; the cavity in the rock, which I have before mentioned, affording me the convenience to make my obſervations, likewiſe at that time, in perfect ſecurity.

The ſurface of the burning lava within the crater never emitted any ſenſible flame, not even when the bubbles upon it burſt with an exploſion; but it ſhone with a glowing vivid light, and reſembled, in its appearance, melted glaſs in a furnace. From this ſurface the light diffuſed itſelf around, and ſhot upwards, but with irregularity, ſometimes riſing and ſometimes falling, according, as it appeared to me, the lava itſelf roſe or ſunk.

This light in the air became more vivid at every ejection of ignited ſtones; and was likewiſe increaſed in intenſity by the quantity of ſparks that accompanied each ejection which were produced, in part, from the breaking of a number of the ſtones, in their claſhing againſt each other.

Such was the appearance of the volcano during the night; but while I was obſerving it in my ſecure receſs, and contemplating the aſtoniſhing ſpectacle, an unexpected phenomenon excited in me much more alarm than pleaſure. The eruptions of the volcano ſuddenly ceaſed, the boiling lava ſank lower than uſual, without again riſing, and

loſt its vivid glowing redneſs; while at the ſame time the numerous ſtreams of ſmoke, to the weſt of the volcano, which before roſe in ſilence, began to iſſue with a loud hiſſing ſound, and the apertures from which they exhaled to ſhine with a bright colour of fire. I know nothing to which the ſound produced by the iſſuing of theſe fumes can be more properly compared than the blowing of large bellows into a furnace by which metals are melted; ſuch as I have ſeen at Zalatna in Tranſylvania, and Schemnitz, and Kremnitz, in Hungary; except that theſe volcanic bellows roared a hundred times louder, and almoſt deafened the ear.

The unexpected change within the crater, and my nearneſs to thoſe fumes, which, as they abounded with highly noxious ſulphureous vapours, I feared might have miſchievous effects, alarmed me ſo much, that I was on the point of abandoning a place which appeared ſo dangerous, and ſeeking ſafety in flight; had not the guides encouraged me to ſtay, aſſuring me, from their repeated experience, that my fears were groundleſs. "The burning matter which boils within the cavern," ſaid one of them, "always contains a great quantity of air. This air has at preſent left the fire, and paſſed through ſubterraneous paſſages to thoſe apertures from which the ſmoke iſſues, and which we call *reſpiri* (vent-holes) becauſe there the air from the fire finds vent. But there is nothing to fear: the noiſe of theſe vent-holes will ſoon ceaſe, and the crater boil and throw out burning matter as before."

My companion gave me this account in ſuch a manner as ſhewed he had himſelf no idea of danger, and the event happened preciſely as he foretold. In a very ſhort time the fumes and the volcano returned to their former ſtate. My two guides afterwards aſſured me that this appearance very rarely happened, and when it did was never of long duration. From this diſcourſe, and other converſation which I had with them afterwards, I perceived that theſe two natives of Stromboli were better acquainted than any other perſon with the ſecrets of their volcano, and the explanation they had given me of the phenomenon I had witneſſed, appeared to me extremely judicious.

I think it cannot be doubted that the bubbles which ariſe in the liquid lava, and burſt with an exploſion, are generated by an elaſtic fluid there collected and confined, which being dilated by the ſtrong action of the fire, and incapable eaſily to diſengage itſelf from the tenacious lava, violently burſts it, and ruſhes above the crater, producing at the ſame time a detonation. Hence originate the ſhowers of ejected matter, which are more or leſs copious, and riſe to a greater or leſs height, in proportion to the greater or leſs quantity and ſtrength of this fluid; which eſcaping, at every exploſion, from the upper parts of the lava, theſe ſink, and again riſe when they have received a freſh ſupply. Suppoſing, then, the ſource of the fluid confined, from time to time, within the liquid lava, to be inexhauſtible, we ſhall eaſily perceive that the eruptions muſt be inceſſant. If from the extreme tenacity of the lava, its want of ſufficient fluidity, or any other unknown cauſe, it ſhould be unable to burſt it, and open itſelf a paſſage within the crater, it will make its way through the ſubterraneous channels to thoſe apertures from which the fumes aſcend, through which it will iſſue, with conſiderable noiſe, till the obſtacle it met with in the lava be removed. In ſuch a caſe the lava will ſink without again riſing during this interval, and will loſe its fiery redneſs from being no longer urged by the energy of the elaſtic fluid; while, from the contrary reaſon, the apertures from which the fumes iſſue will acquire a glowing redneſs, becauſe the fluid eſcapes through them with violence.

Such were the ideas which floated in my mind, when, the night being conſiderably advanced, I returned home, with my imagination ſtrongly impreſſed with the objects I had ſeen. Theſe ideas I afterwards, in a cooler moment, recalled to a rigorous examination,

mination, enquiring, especially, what might be the nature of volcanic gases, not only of such as are imprisoned in the liquid lavas of Stromboli, but of those which are inseparable from other burning volcanos; as likewise in what manner they act, to produce the ejections; objects which appear to me to be at once new and highly interesting. These enquiries produced a number of observations and connected experiments, which it will be more proper to present the reader in another part of the work than in this place; both because they regard volcanos in general, and because to detail and explain them would lead me too far from my present subject, which is to speak of the objects I observed in this volcanic country. As I have, therefore, given some account of the nature and conformation of Stromboli, and the most remarkable phenomena of its volcano, I shall proceed to describe, in the following chapter, the different substances of which this island is composed.

CHAP. XI. — STROMBOLI, CONTINUED.

The component substances of this island are scoriæ, lavas, tufas, pumices, and specular iron.—Three kinds of scoriæ.—The first kind has some degree of vitrification.—Stromboli produces no true vitrifications or enamels.—The name of pumice not suitable to this kind of scoria.—Its ejection, and the figure which it sometimes takes in the air.—Second kind of scoria, for which Stromboli is remarkable.—Its decomposition where the acid-sulphureous vapours prevail.—The substances thrown out of Stromboli more acted on by the fire, than those ejected by other volcanos.—The activity of the fires of Stromboli has long remained the same.—False opinion of some, that volcanic glasses derive their origin from re-melted lavas.—Third kind of scoria.—All these three kinds of scoriæ originally porphyry with a horn stone base.—Enumeration of the different lavas of Stromboli.—Its tufas and pumices.—Specular iron.—Dangerous situation in which the latter is found.—Its crystallization, beauty, and variety.—Flakes of sulphate of lime (selenite or gypsum) incrust some of these crystallizations, which consist of very thin leaves of iron fastened on each other.—Hardness, and, at the same time, fragility of this iron.—Changes produced in it, when exposed to the fire of the furnace, and that excited by oxygenous gas (dephlogisticated air).—Decomposed lava the matrix of this specular iron.—Cause of this decomposition.—Comparison between this specular iron discovered by the author, and that noticed by others in volcanic matters.—This specular iron produced in the dry way.—Rareness of it in volcanic countries.—Sulphurous acids produce no change in the iron of Stromboli.—Its antiquity.—The island of Stromboli formed by rocks of porphyry, melted by subterraneous conflagrations, and thrown up by the sea.—Different porphyries of countries not volcanic exposed to the fire of the furnace, to compare the changes caused in them by that with those produced by the volcanic fire.—The epoch of the first conflagrations of Stromboli anterior to all history.—Few notices left of them by the ancients. Strabo's accounts of Stromboli and Volcano.—The eruptions of the latter mountain must have been more frequent and stronger in the time of that geographer, than at present.—Wind which, according to Diodorus Siculus, blew from these two islands.—Mistake of Cluverius, that in his time the crater of Stromboli was at the summit of the mountain.—The most ancient epoch of the conflagration of Stromboli, known to us from history, anterior to the Christian era by about 290 years.—Enquiries relative to the matters which have so long maintained this conflagration.

THE substances of which this island is formed, at least so far as I have been able to discover, are scoriæ, lavas, pumices, and specular iron; as likewise the sand of which I have

have ſufficiently ſpoken in the preceding chapter. Of the ſcoriæ there are three kinds: the firſt is extremely light, of a dark grey colour, and on it the violence of the fire has taken moſt effect. Some ſmall pieces are coated over with a true varniſh of glaſs; the others in general conſiſt of ſemi-tranſparent vitreous threads, ſome of which are as fine as the threads of a ſpider's web. We may, therefore, conclude that the matter was in a ſtate of ſemi-vitrification, when its parts were ſeparated by the elaſtic fluids, and rendered extremely porous; but that ſome of it, inſtead of ſeparating, lengthened into threads, which hardened on its contact with the air. We perceive likewiſe, that only a degree more of heat was neceſſary to render the vitrification complete.

Of the various bodies ejected by the volcano of Stromboli, this kind of ſcoria appears to be that on which it has acted with moſt effect. It has not, however, been changed into a true glaſs, if we except ſome pieces of very inconſiderable ſize. The conflagration of Stromboli has never, therefore, arrived at this degree of violence, as I could not find throughout the whole iſland either vitrifications or enamels. The natives themſelves indeed ſufficiently ſatisfied me of their non-exiſtence, as thoſe of the neighbouring iſland of Lipari are well known to the inhabitants of all the Eolian iſles, under the common name of *ferizzi*.

But may not the ſcoria here deſcribed as in a great degree filamentous, be conſidered as a ſpecies of pumice? I certainly do not perceive in it the diſtinguiſhing characteriſtics, for the fibrous quality alone is not ſufficient. I conclude, therefore, that when any ſtone, in conſequence of the action of volcanic fires, paſſes into the ſtate of pumice, certain determinate conditions are required, either in it, or in the degree of heat to which it is expoſed, or perhaps in both, which are not yet ſufficiently known to volcanic naturaliſts, notwithſtanding the attention they have beſtowed on the ſubject. Of this the preſent ſcoria may furniſh an example. The ſtone which was its baſe, by the action of fire, had been diſſolved into lava within the crater; and this lava by the action of elaſtic fluids, and probably by that likewiſe of ſulphur, has become a filamentous ſubſtance, and as its filaments are vitreous, appears to ſhew an immediate diſpoſition to change into pumice; but it was not formed by nature to become that ſubſtance, as appears by the ſmall pieces which have aſſumed the thin vitreous coating. Were the fires of Stromboli more violent and powerful, the ſtones which are melted and thrown out would paſs from the ſtate of ſcoria to that of perfect glaſs, without firſt acquiring the nature of pumice.

The ſcoriæ of this kind are never thrown by the volcano in large pieces to any great diſtance, from the great eaſe with which they break and pulverize.

It is worthy of remark, that not a few pieces of theſe ſcoriæ incline to a cylindrical figure, and that their filaments are parallel to the axis of the cylinder. Both theſe effects, in my opinion, may be attributed to the projectile impetus received from the elaſtic fluids when forced from the lava in the crater; theſe pieces not having had time to take a globular form, both from their ſudden cooling and coagulation in the air, and from the ſmallneſs of their ſize.

I ſhall now proceed to ſpeak of the ſecond kind of ſcoria, I mean that for which Stromboli is celebrated, and of which its ejections principally conſiſt. This ſpecies in its external appearance has no eſſential difference from the former; but its ſpecific gravity is nearly three times as great, it is not at all fibrous, and only exhibits the ſlighteſt ſigns of a beginning vitrification. In other reſpects, like the greater part of ſcoriæ, it is not only rough, ſcattered over with tumours and irregular figures, and every where ſcorified; but it is full of vacuities of round, oblong, and other forms. The largeſt of theſe are about half an inch in length, and the ſmalleſt almoſt inviſible. They extend through

through every part of the ſcoria quite to the innermoſt ſubſtance, even in the largeſt pieces; and in the centre of ſome they are found more numerous and large. Hence it appears that a univerſal effervescence of the elaſtic fluids muſt have prevailed in the ſubſtance of theſe ſcoriæ while they were in a fluid ſtate. The internal ſurface of each of theſe cavities is, as it were, coated with a dull dark-red varniſh, while the reſt of the ſcoria is black. To diſcover the viſible characteriſtics of this ſcoria, it muſt be examined with a lens in the recent fractures: we then perceive that the grain is not very fine, without brilliancy, and of a uniform texture. Its hardneſs is moderate, its fracture irregular, it gives ſome ſparks with ſteel, emits a weak earthy odour, and attracts the magnetic needle at the diſtance of half a line. Theſe exterior marks afford ground to believe that this ſcoria has for its baſe the horn-ſtone; and its component principles confirm the ſuppoſition beyond contradiction.

This baſe however, is not homogeneous, ſince it contains feltſpars and ſhoerls. On examining it with attention, we perceive that it is interſperſed with a great number of ſmall white ſpots, which form a remarkable contraſt with the black ground on which they appear. By having recourſe to the aid of the lens, we diſcover that theſe ſpots are ſcales of feltſpar As they are quite flat, wherever they are viewed in the fracture, they appear about the thickneſs of a line, but longer when ſeen on a flat ſurface.

The number of the ſhoerls contained in this ſcoria is very conſiderably leſs than that of the feltſpars, but they are much larger. They are of a black colour, and in figure priſms, the length of many of which is five lines, and the breadth two. It is, however, very difficult to extract entire priſms from the ſcoria, on account of the tenacity with which they adhere to it.

They may be obtained much more eaſily in certain low bottoms near the crater, where they may be found ſeparated from the ſcoria, the ſmall fragments of which are there accumulated in great quantities. Detached ſhoerls may there be found little altered by the atmoſphere and elements; many of them indeed fractured and mutilated, but ſome few entire, and ſtill preſerving their priſmatic figure, which is octohedrous, and terminated by two pyramids *. They will ſcarcely cut glaſs, and conſequently cannot be very hard. Their appearance is vitreous, and they ſeem as uninjured as when they were in the rock, their primitive matrix.

Beſides the feltſpars and ſhoerls, theſe ſcoriæ contain various other ſmall ſtones, which I at firſt doubted whether I ſhould conſider as another ſpecies of ſhoerls, or as what have been called volcanic chryſolites. They have the tranſparency of glaſs, and are of beautiful colours. Some are of a fine graſs green, others of a deeper emerald green, and others of a mixture of green and yellow. Some of theſe qualities, which are common to chryſolites, and to certain ſpecies of ſhoerls, cauſed me to doubt, when I firſt examined them, whether I ſhould claſs them with the former or the latter. But beſides that I could not diſcover that they had any regular figure, the eaſe with which they were fuſed with the blow-pipe, determined me rather to conſider them as ſhoerls.

From the obſervations that have already been made, it ſeems clear that theſe two ſpecies of ſcoriæ are of the nature of porphyry, as they are compoſed of a horn-ſtone in which feltſpars and ſhoerls are incorporated †.

* The original has "two dihedrous pyramids" (*due piramidi diedre*). But (as the German tranſlator has rightly remarked) who has ever ſeen a pyramid with only two ſides? I have, therefore, with him, omitted the word, which muſt have been inſerted by ſome miſtake.—T.

† It appears to be proved by the moſt recent diſcoveries of chemical analyſis, that the baſe of the greater part of porphyries is ſhoerl in the maſs, or horn-ſtone, or trapp; though it cannot be denied that this baſe is likewiſe frequently ſiliceous. Many of the lavas, therefore, of the Phlegrean Fields, which I have deſcribed in the firſt volume, may be referred to this kind of ſtone.

But

But before I diſmiſs this ſecond kind of ſcoria, I muſt make one more obſervation on it. Some pieces of this ſcoria lay near the apertures, from which the ſtreams of ſmoke I have already mentioned aroſe to the weſt of the volcano. I collected ſome of theſe, which had almoſt ſtopped up one of the orifices through which the fumes iſſued, and which conſequently was ſtrongly acted on by them. Theſe pieces had undergone changes ſimilar to thoſe of the lavas of Solfatara. They had loſt their black colour, were covered with light-yellowiſh cruſt, and were become ſo ſoft that they might be cut with a knife. The ſhoerls, however, in the part where this alteration had taken place, had undergone no change. But the ſulphureous acid which had acted on this ſcoria, beſides having in part decompoſed it, had likewiſe produced in its cavities ſmall aggregates of ſulphate of alumine (alum), and ſulphate of lime (gypſum). This obſervation I have had an opportunity of making, not on volcanic products long ſince decompoſed, which decompoſition there is every reaſon to believe muſt have been effected by the means of ſulphureous acids; but, inſtructed by nature herſelf, on a product actually undergoing decompoſition, and thus preſenting an inconteſtable proof of the power of theſe acids to decompoſe ſuch ſubſtances.

I have denominated the principal matters ejected by Stromboli, and on which I have hitherto treated, ſcoriæ; though, according to the judicious and juſt remark of M. Dolomieu, theſe differ from lavas only in having undergone greater alteration within the volcano, having been more inflated, and acquired a ſurface more rugged, and of a more irregular form; and ſuch preciſely is the appearance of the ſtones thrown out by Stromboli. I am aware, however, that the difference of theſe circumſtances is not intrinſic and eſſential; and that, therefore, what I have termed ſcoria may be likewiſe called lava, only more changed in the volcano, ſince it is in ſubſtance the ſame matter melted by the fire, and differently modified by the elaſtic gaſes. I think, notwithſtanding, that I have expreſſed myſelf with ſufficient propriety, when, in the laſt chapter, I ſaid that the lava ſwelled, ſunk, burſt, and was thrown up into the air, though I have afterwards called the congealed pieces of it ſcoriæ, ſince they poſſeſs the characteriſtics of that ſubſtance.

With reſpect to the matters that ferment and boil up in the crater of Stromboli, I ſhall here make a remark which may deſerve conſideration. This volcano, beſides the ſingularity of having been in a continual ſtate of eruption from time immemorial, has alſo this other, that the ſubſtances it ejects are more repeatedly acted on by the fires of its crater than in other volcanos. The latter being ſituated at the ſummit of ſteep mountains, having once thrown out their ignited ſtones beyond the edges of the fiery gulf, never receive them again, as they pour headlong down their ſides. But the crater of Stromboli is ſituated half-way up the mountain, and ſurrounded, except only on the ſide which faces the north, by ſteep precipices; ſo that, beſides the ſcoriæ which are thrown up perpendicularly, and fall again immediately into it, great quantities which are thrown beyond its edges roll down the declivities, and return again into it. When we conſider, therefore, how many ages this recurrence of burning matters into the volcano has continued, we might expect that from the continued action of the fire they muſt approach very near to a vitreous nature, or rather be changed into perfect glaſs; yet this is by no means the fact. I cauſed a quantity of ſcoria to be dug up from the depth of eight feet, at no great diſtance from the mouth of the crater, and found it exactly reſemble that on the ſurface, though it muſt have been ejected ſo long a time before. It is likewiſe to be remarked that the ſhoerls in the recent ſcoriæ are as entire, and as completely cryſtallized, as thoſe in the moſt ancient.

Theſe obſervations are a certain, and, in my opinion, elegant proof that the activity of the fire has never been, in former ages, either greater or leſs than it is at preſent.

Not leſs, ſince then the fuſion of the matters in the crater would not have taken place, and conſequently there would have been no eruptions; nor greater, (at leaſt not in any conſiderable degree,) otherwiſe the ſcoriæ would have been completely vitrified, and the ſhoerls fuſed, as we find them by our common fires when intenſe.

Hence likewiſe appears what little foundation there is for the opinion of ſome naturaliſts, who have ſuppoſed that volcanic glaſſes owe their origin to the refuſion of lavas; ſince, as we have ſeen, no true glaſs has ever been thrown out by Stromboli, notwithſtanding the multiplied refuſions of the ejected ſcoriæ, or ſcoriaceous lavas, if any ſhould chooſe to call them by that name *.

But it is time to conſider the third ſpecies of ſcoria. This properly belongs to the ancient volcano, and is found, on removing the ſand, at a ſmall depth, on the eaſt ſide of the iſland, a little above the foot of the mountain. It is diſpoſed in ſtrata forming one body with the ſubjacent lavas, which at ſome diſtant period flowed from the ſummit of Stromboli into the ſea. The inhabitants make great uſe of this ſcoria to build their houſes, as it is very firm and very light, which lightneſs ariſes from the ſmall quantity of matter it contains in proportion to its bulk, and its great porouſneſs. As the partitions which ſeparate the cells or pores are very thin, it is difficult properly to examine this ſcoria, which bears the marks of the higheſt antiquity. After as attentive an examination as I could beſtow, I diſcovered in it black ſhoerls and white feltſpars. The body of its ſubſtance does not differ, that I could perceive, from that of the other two kinds.

Having thus deſcribed the three kinds of ſcoriæ of Stromboli, though I do not mean to ſay that other enquirers may not diſcover more ſpecies, I ſhall next proceed to enumerate and deſcribe the lavas, which, for the ſake of order, I ſhall divide into porous and ſolid, beginning with the former.

I. This lava forms an aſcent of ſome hundred paces, to the weſt of the iſland. The eye does not heſitate a moment to recognize it as a product not at all differing in ſubſtance from the ſecond ſpecies of ſcoria. It has the ſame ground, conſiſtence, and colour; and contains the ſame feltſpars and ſhoerls, both of which are in like manner unmutilated, and have the ſame cryſtallization. It likewiſe gives ſparks, in the ſame manner, with ſteel. But the ſize and number of its cavities or pores is leſs, the ſolid parts are more ſmooth, nor have they in their grain that irregularity which appears to be inſeparable from ſcoriæ. We might therefore ſuppoſe that it is the produce of the preſent volcano; nor ſhould I object to that ſuppoſition, were the courſe of the lava on that ſide; but I find it is directed towards the ſummit of the mountain, where there is every reaſon to believe the greater volcano anciently was ſituated. I am therefore of opinion that this was its ſource.

II. This lava is leſs porous. The grain has ſomewhat of a ſiliceous appearance. It is ſmooth to the touch, and gives ſparks plentifully with ſteel. It contains but few feltſpar ſcales, but innumerable ſhoerls. It lies on the ſouth ſide of the mountain, in large ſingle ſtones.

III. The difference between this lava and that of No. II. is but ſmall, and conſiſts in its greater poroſity, and a feeble argillaceous odour. This lava is found ſcattered over the iſland. The petroſilex is the baſe of both theſe lavas.

* With reſpect to the matters ejected by Stromboli which ſcorify and do not vitrify, it may perhaps be ſaid that this does not happen, becauſe they have not calorie enough to become glaſs, but from the quality of theſe matters, which, originating from the horn-ſtone, only produce ſcorification, and that from the quantity of iron they contain.

This reaſoning may at firſt view appear plauſible, but is ſufficiently refuted by the eaſy vitrification of theſe ſcoriæ in the furnace, as we ſhall ſee preſently.

I ſhall

I ſhall now ſpeak of the ſolid lavas, which I ſo term, not becauſe they are without pores, but becauſe their pores are ſo minute that they eſcape the eye.

I. This lava, notwithſtanding its ſolidity, is friable, and gives ſparks feebly with ſteel. It abounds in feltſpars, and ſtill more in ſhoerls. It is of a dark-grey colour; its baſe is horn-ſtone, and conſequently it emits an earthy odour.

II. This ſecond ſpecies of ſolid lava is ſtill more friable than the former, and it has a conſiderable argillaceous odour. It contains no ſhoerls, but ſo abounds in feltſpars that they occupy more than one third of its maſs, and are eaſily diſtinguiſhed, as they are of a ſhining whiteneſs on a brown ground. Their lamellæ are diſtributed equally through its whole contexture. I collected both this lava, and that of No. I. from ſeveral currents of it on the ſouth-eaſt ſide of Stromboli.

III. I am in doubt whether I ought to call this ſtone a lava, as it is a porphyry of a beautiful dark-red colour, which changes to a black as ſoon as it is expoſed to the activity of the furnace. The place, likewiſe, in which I found it, contributes to increaſe my doubts. This was a hill of tufa forming a large inclined ſtratum, on the ſouth-eaſt ſide of the iſland, within which it is found in large maſſes. I was led, therefore, to conjecture, that both this porphyry and the tufa might have been thrown out by the volcano without having been expoſed to the violence of the fire. I am ſtill, however, unable to form any determinate concluſion, ſince I am in poſſeſſion of ſeveral other ſpecimens of porphyry, which bear indubitable marks of having been fuſed, though they ſtill retain a beautiful red colour, as will be ſeen when I come to treat of the iſland of Lipari. However this may be, this ſtone has for its baſe the petroſilex, is ſpotted with white feltſpars, and takes a fine and brilliant poliſh.

IV. This lava which is found in a long-continued current, on the ſouth-weſt ſide of Stromboli, contains, as uſual, ſcattered feltſpars. It is of a black colour, of the horn-ſtone baſe, and emits a ſtrong earthy odour. It is accompanied with various greeniſh and black ſhoerls. A number of curling veins and waves appear in it, which probably were produced when it flowed from the mountain. Though it is ſolid, it has in it ſeveral ſmall cavities, all of which are long ellipſes, all placed in the direction of the current from which they certainly derive their figure.

Theſe are the ſcoriæ and lavas found at Stromboli, omitting a few varieties, which would only ſwell the work, without adding to its utility.

According to the diviſion I have made, after the lavas, I ſhould proceed to ſpeak of the tufas, as I have already given the reader to underſtand they are not wanting in ſome parts of the iſland. But I think I fully deſcribe theſe, when I ſay that they are an argillaceous earth, pulverizable, extremely bibacious, of a grey colour, containing fragments of feltſpar and ſhoerl, and which, in the furnace, hardens without melting. Such, at leaſt, are the characters of the tufas which I obſerved at Stromboli.

I now proceed to the fourth kind of the volcanic productions of this iſland, the pumices. Theſe are found on the eaſt ſide of the mountain, at about one-third of its height, on the ſides of ſome pathways which croſs ſeveral vineyards, and in the furrows made by the deſcent of the waters. They are not found in maſſes, and ſtill leſs in currents, but in ſmall pieces, which are not numerous, and it is eaſy to perceive that they have been brought above ground by the labours of men, or by the action of the rains; and, following the traces they afford, we find them buried under the ſand, at the depth of ſeveral feet. Here they are but thinly ſcattered, and are in the ſame ſtate as when thrown out of the volcano. I cannot pretend to aſcertain from what crater they originated, whether the ancient, the preſent, or ſome other, the remembrance and traces of which are loſt; as nothing affords any light to direct my reſearches relative to this obſcure

queſtion. I found them in no other part of the iſland. As they do not differ from the more common and known ſpecies, it would be ſuperfluous to give a long deſcription of them. I ſhall only ſay that their baſe is petroſiliceous, with a mixture, as uſual, of feltſpars.

Stromboli has, therefore, at ſome other period thrown out pumices, though it does not eject them at preſent. A ſimilar change, though on a larger ſcale, we find likewiſe take place in Veſuvius.

The different kinds of ſcoriæ and lavas being expoſed to the fire of the furnace in ſeparate crucibles, the baſe, whether of petroſilex or horn-ſtone, changes into a ſhining, ebullient, but hard glaſs, with a fuſion of the ſhoerls, but not of the feltſpars. From the pumice was obtained a glaſs, lighter from the multitude of its pores, of a grey colour, and dully tranſparent.

It now remains to ſpeak of the iron, the fifth and laſt of the volcanic productions which I found on this iſland. This is ſpecular. I am not ignorant that this ſpecies of metal has been likewiſe obſerved in other volcanos; but it gave me pleaſure that I was the firſt who had diſcovered it in the Lipari iſlands; and this pleaſure was conſiderably increaſed, when I perceived that the cryſtallizations of this iron were much larger than thoſe which had been obſerved by others; and, conſequently, much better adapted to ſhew and explain their formation. It is found on the ſouthern ſide of the iſland, at the diſtance of ſomewhat more than a mile from the inhabited part, in a rock of lava, which deſcends almoſt perpendicularly into the ſea, from the height of about a hundred and fifty paces. Some natives of Stromboli having ſhewn me a ſmall ſpecimen of this iron, without knowing what it was, as one of the rarities of their country, I was very deſirous to obtain ſome others, but ſuch as might ſhew the iron ſtill adhering to the matrix, as theſe were detached pieces, found on the beach under the rock. But to procure new pieces of this production, neither entreaties nor any common offers of reward availed; and, to ſay the truth, ſo great was the labour and danger of obtaining them, that they never could be ſufficiently paid for. To get at theſe ſtones, as they call them, it was neceſſary to go by a very dangerous way, ſcarcely paſſable by the wild goat, much leſs by men, and therefore called very properly *il malo paſſo*, the bad or dangerous road. But, to reach the preciſe ſpot where the iron is found, ſtill greater danger muſt be encountered, as the rock, beſides its extreme ſteepneſs, is partly fallen down, and the reſt on the point of falling; and it is very difficult to find firm footing on it, without ſlipping, and falling headlong into the ſea. The deſire of gain, however, added to the habit in which theſe peaſants are of paſſing cliffs and fearful precipices, induced two of them to undertake this enterpriſe, which they ſucceſsfully executed, bringing back with them ſome very beautiful pieces of this iron which they had ſeparated from the lava with a pick-axe. From them I learned, that the rock has clefts in many places, and that within thoſe clefts the iron is found.

This metal is cryſtallized in laminæ, vertical to the mother rock, in which they are ſo firmly infixed, that they muſt be broken to obtain them detached. The two faces of every lamina or plate are parallel to each other, or nearly ſo. In general, the plates, at a firſt view, appear oval; but, when examined with more attention, they are found to be polygons. The figure of theſe polygons is extremely diverſified. Sometimes they are triangles, terminating, in the upper part, in an obtuſe angle; and ſometimes in a right, or acute angle, though this but rarely. Some of thoſe plates have ſix, ſeven, eight, and ſometimes more, ſides; nor is there leſs variety in the length of the ſides, or the meaſure of the contained angles. The ſides are frequently cut by plates, which are triangular, quadrangular, rhomboidal, or of other polygonal figures. Nature, therefore, in the formation

formation of this metal, appears not to have preſcribed to herſelf any ſingle form of cryſtallization; or, at leaſt, if ſhe has, it is not eaſy to diſcover the ſimple primitive figure from which has ariſen ſo great a variety.

The plates or faces have ſuch a brilliancy and poliſh, that if the fineſt ſteel be not inferior, it certainly is not ſuperior to them in beauty. They reflect the light equally with the moſt perfect mirrors. The largeſt exceed four inches in length, and three and a half in breadth; but there are innumerable others which are ſmaller; and only one inch, or the half, the third, or the quarter, of an inch, until they become ſo minute as to be only viſible by the microſcope; but they are always cryſtallized in one of the figures already mentioned. A ſingle lamina is never ſeen, but they are always in groups, which groups are ſometimes twenty or more inches in circuit. The number of them, therefore, is very great.

I muſt not here omit to mention a peculiar circumſtance, which uſually attends theſe cryſtallizations. The circumference of theſe thick metallic groups is formed of laminæ ſo minute, that a ſtrong lens is neceſſary to diſcern them; but they become gradually larger as they approach the centre, where they are largeſt of all. There are alſo places in theſe groups where Nature ſeems rather to have ſketched than completed her work. We find there groups or ſmall maſſes of iron which preſent only the firſt principle of cryſtallization. In others we do not find even this ſketch but only a cruſt attached to the matrix. There are alſo places in which a number of ſmall tumours ariſe, that viewed with the naked eye appear to be without form, but when examined with the lens, are diſcovered to conſiſt of a multitude of ſmall laminæ irregularly conglutinated. In the ſame manner, ſome cruſts are formed, in ſome places three lines in thickneſs, which, both internally and on the ſuperficies, are found to be compoſed of an aggregate of laminæ thrown irregularly on each other.

In reference to ſome obſervations I ſhall hereafter have to make, I muſt mention that ſome of theſe aggregates of laminæ are either entirely covered with a coating of ſulphate of lime, ſo that it muſt be taken off to get at them, or at leaſt only the upper part of them riſes above it. This coating is of a very white colour, and ſo ſtrongly attached to the iron, that it appears like wax that has been poured over it and hardened.

The colour of theſe laminæ, in general, greatly reſembles that of the fineſt and moſt brilliant ſteel; except ſome which have a violent tincture. They are as reſplendent in the fractures as on the faces. Notwithſtanding their great hardneſs, they are nearly as brittle as glaſs.

On carefully examining theſe laminæ, a phenomenon preſented itſelf, which increaſed my attention. This was ſome ſcales parallel to each other, which aroſe from the faces of theſe cryſtals, and induced me to ſuſpect that their compoſition might be the reſult of a number of ſmall leaves united and conglutinated together. An inſpection of the larger laminæ convinced me that this conjecture was well founded; for, on breaking them croſſwiſe, I frequently found in the fractures very ſmall leaves. There are alſo ſome which very evidently ſhew them, and in great numbers, on their faces. A leaf, for example, may occupy a ſixth part of the face and their end. Further on, under that, another appears, which extends another ſixth, and then terminates like the former. Still farther, under the ſecond leaf, appears a third, which extends only a ſmall ſpace: and in like manner others: ſo that the lamina will be the leſs, the ſmaller the the number of the leaves of which it is compoſed. I ſhall here avail myſelf of a compariſon, which, though not very ſcientific, will aptly explain what I mean. When a number of leaves of paper are, firſt, rolled up, and afterwards ſpread out on a flat ſurface, it will happen, on their unrolling, that each will ſeparate a little from the next, ſo that they

they may all be numbered; and it will be evident that the firſt, which is above all the reſt, renders the heap larger, and that the leaves being ſucceſſively taken away, the heap will be diminiſhed, until it will at length only conſiſt of the ſingle laſt leaf.

The laminæ, however, are not all compoſed in this manner. In ſome, the component ſcales are conglutinated in ſuch a manner that they do not appear, and the fracture preſents a continued ſurface. Yet there are but few laminæ ſo ſmooth on both their faces as not to ſhew the preſence of ſome leaf. More than once I have found on one lamina others attached which ſhewed they were of later formation.

Theſe facts, when compared, muſt remove every doubt with reſpect to the nature of the formation of theſe noble cryſtals, as it is manifeſt they are compoſed of a greater or leſs number of ſmall plates, which, placed upon, and adhering to, each other, form the larger laminæ.

Among all the volcanic productions which I met with and collected in my travels, there is not one which gives ſparks ſo plentifully with ſteel, or influences the magnetic needle at ſo great a diſtance, as this of which I now treat.

Almoſt every lamina, part, or fragment of this production poſſeſſes polarity, attracting the magnetic needle at one end, and repelling it at the other; which attraction and repulſion are equal in force. The ſame powers of attracting and repelling are equally found in the cruſts of iron apparently not cryſtallized, and in their parts.

Notwithſtanding, however, its power to move the magnetic needle, it is ſcarcely at all acted on by the magnet, at leaſt, not unleſs it be reduced to very ſmall particles.

When approached to the Leyden phial, it freely conducts the electric ſhock.

The furnace has no other effect on it than to deprive the laminæ of their brilliancy, and diminiſh, in a ſmall degree, its magnetic virtue, which is not deſtroyed even by the fuſion of the laminæ; to obtain which the blowing pipe is not ſufficient; but oxygenous gas (dephlogiſticated air) muſt be applied for about two minutes, as one will not be long enough. The little ball into which a ſmall lamina of ſpecular iron is converted, loſes on its ſurface all brilliancy, and acquires the colour of lead expoſed to the air. Internally, however, it ſtill retains ſome reſplendence; but the friability of its parts is increaſed, and it gives but few ſparks with ſteel. The ſame change takes place in this metal which is ſo frequently obſervable in other bodies after having been in a ſtate of fuſion: it is interſperſed with ſmall air-bubbles, and rendered, in a manner, ſpongy.

Such are the principal properties of the ſpecular iron which I diſcovered at Stromboli. But it is of importance to know, of what nature is its matrix. This is a lava which does not eſſentially differ from thoſe lavas of this volcanic country which are of the horn-ſtone baſe, except that it has undergone great changes. It is ſo friable, that it may be ſcratched with the nail. Inſtead of being black, or dark brown, it is of a cinereous, and, in ſome places, of a reddiſh colour. It is extremely porous, and therefore light; and its grain rough and dry, not unlike that of ſome ſand-ſtones. Its odour is argillaceous, and it adheres ſtrongly to the tongue, like a burnt bone. When immerſed in water, it imbibes it with a hiſſing noiſe, and ſaturates itſelf with it.

Beſides that it gives no ſparks whatever with ſteel, this lava has not the ſmalleſt effect on the magnetic needle, except when ſome ſmall particle of ſpecular iron ſtill remains within it; for though the latter principally covers the external ſurface of the lava, a number of microſcopic laminæ glitter, here and there, in its internal pores.

The ſmall feltſpar cryſtals in this changed lava are entire, but their natural brilliancy is diminiſhed, and they are cracked. It is neceſſary to look with attention to diſtinguiſh them from the ſubſtance of the lava, as their colour is the ſame; but they are much more eaſily diſcernable when the lava has been expoſed to the furnace, ſince they

have then acquired a greater degree of whiteneſs, and are ſeen through a thin blackiſh cruſt of enamel, into which the ſurface of the lava is changed. This, however, in a few ſeconds, is entirely freed from the oxygenous gas, and a homogeneous but ebullient enamel produced.

The great analogy between the alteration undergone by this lava and the changes produced in many others by the action of ſulphureous acids, ſufficiently ſhews that it proceeds from the ſame cauſe. This is likewiſe evidently confirmed, by the thin cruſts of ſulphate of lime with which it is coated, and which have been generated by the ſulphureous acids, combined with the ſmall portion of lime contained within the hornſtone.

It will here not be improper to give a conciſe account of ſome obſervations of a ſimilar kind with thoſe I have made, that by comparing we may be enabled to deduce ſuch concluſions as may elucidate the ſubject.

The firſt author, who, to my knowledge, has ſpoken of cryſtallized iron adhering to volcanic matters, is M. Faujas in his *Mineralogie des Vulcains*. He tells us that he found at Volvic, in Auvergne *, a homogeneous and heavy lava, from the ſurface and fiſſures of which projected a great number of ſmall thin plates of iron, which had the luſtre of the fineſt poliſhed ſteel. Though he does not give their ſize, there is reaſon to believe they muſt have been almoſt microſcopic; ſince he ſays a lens of conſiderable magnifying power was neceſſary to diſcover that ſome of theſe plates were ſegments of hexagonal priſms, and that others conſiſted of two hexagonal pyramids joined at the baſe. They were attracted by the magnet. The lava to which they adhered, according to him, was baſaltic, but greatly altered, having become white, cracked, friable and ſoftened.

M. De Larbre, phyſician at Riom, examined with great care, both the iron of Volvic above mentioned, and that of the Puy de Dome and Mont d'Or in the ſame province *. The cryſtals of the latter iron are ſections of octahedrons ſimilar to thoſe of alum, and ſometimes perfect octahedrons. It is at Mont d'Or that the cryſtallizations, or plates, of ſpecular iron are moſt beautiful and diſtinct. The largeſt are about an inch and a half in breadth, ſomewhat more in length, and about a line and a half, or at moſt two lines in thickneſs. The faces of the plates, when viewed with the lens, diſcover ſtreaks and diminutions which prove the accumulation of a number of ſmall laminæ.

The ſpecular iron of the three abovementioned places in Auvergne poſſeſſes a magnetic quality, and many pieces of it attract the magnetic needle on one ſide, and repel it on the other.

M. De Larbre remarks that the ſpecular cryſtallized irons of Mont d'Or, the Puy de Dome, and Volvic, have the ſame matrix, that is, a cellular and pumiceous lava; and that this lava has been more or leſs changed by the action of acids.

Laſtly, a third ſpecimen of the cryſtals of ſpecular iron has been deſcribed by the commendator Dolomieu, which was found by him on ſome ſolid lavas, at Jaci Reale, and on different ſcoriæ, which had been changed and ſoftened by acid ſulphureous vapours, in the crater of Monte Roſſo. Thoſe found at the former place were thin ſhining plates, of a regular hexagonal figure, hard, ſlightly attracted by the magnet, and the largeſt not exceeding a line and a half. Thoſe of Monte Roſſo conſiſted only of ſmall, thin, irregular ſcales.

* Now the department of Velay. T.

† See his Diſſertation in the *Journal de Phyſique* par l'Abbé [redacted] an 1786.

When

When I compare theſe obſervations on ſpecular iron with my own, I find that they greatly reſemble them. The iron deſcribed by theſe authors is, like mine, cryſtallized; but the cryſtallization is different, and the laminæ of the iron of Stromboli are larger than thoſe of that of Auvergne and Etna. The beautiful luſtre, like that of ſteel, and the magnetic virtue, are the ſame in both. The formation of the cryſtals of Auvergne is obſerved to ariſe from the appoſition of ſmall ſcales, as I obſerved in mine, only that, in the latter, it is more diſtinctly ſeen. Laſtly, the lavas in which this ſpecular iron is found excepting thoſe of Jaci Reale, have all undergone a change.

This identity in the effects naturally induces to conclude an identity of cauſe. The three naturaliſts above cited are of opinion, that the formation of theſe martial cryſtals is to be aſcribed to the volcanic fire; by the action of which the metal was ſeparated from the lava of which it made a part, and ſublimed; and that afterwards, falling on the ſurface, and into the clefts, it there attached and collected, taking a regular form. This explanation is, certainly, not only the moſt natural, but is confirmed by facts; ſince iron, in crucibles, uſing certain precautions, cryſtallizes in a ſimilar manner, as has been obſerved by MM. Grignon, Faujas, and Buffon. I am therefore of the ſame opinion relative to the ſpecular iron of Stromboli, that is, that the vehement heat of the fire deprived the lavas of this metal, by ſubliming it, which afterwards attached to their ſurface, producing laminated cryſtals, more or leſs large, and more or leſs numerous, with thoſe varieties which uſually accompany cryſtallizations. In fact, while almoſt all the other lavas of Stromboli move the magnetic needle, thoſe which have cryſtallizations of iron on their ſurface, have not the leaſt effect on it; no doubt becauſe they are in a great meaſure deprived of that metal. But as, in general, the fire has acted on the other lavas, in the ſame manner as on thoſe which exhibit the ſpecular iron, and as, beſides, the ſpecimens of the latter are not numerous in volcanized countries, (ſince, excepting the places above mentioned, and ſome of the Phlegrean-fields *, I know none where this cryſtallized iron is found,) it ſeems not to be doubted but ſome other circumſtance, beſides the fire, muſt concur to its formation; which perhaps may be the union of the iron with the muriate of ammoniac, as it is well known that by ſuch a union that metal is ſublimed and paſſes into the nature of ſpecular iron.

We have ſeen that the ſpecular iron of Stromboli is, in many places, covered with ſulphate of lime; and ſince this ſulphate derives its formation from the action of the ſulphureous acids, they muſt have acted likewiſe on the metal, the cryſtallization of which is anterior in its origin to this neutral ſalt, which cloſely inveſts and covers it. But though theſe acids are ſufficiently powerful to attack and decompoſe the moſt ſolid and hard lavas, they have not been able to make any impreſſion on the ſpecular cryſtals, which have likewiſe reſiſted all the ſhocks of other deſtructive cauſes, among which the aëriform fluids floating in the atmoſphere are no ſmall part, and ſtill retain that brilliant luſtre which they received at firſt, notwithſtanding the antiquity of their production, which is probably the ſame with that of Stromboli itſelf, of which the annals of time afford no memory. For, in fact, theſe cryſtallizations being found adhering to a rock formed of ſtrata of lava, which ſerves as a foundation to almoſt the whole ſuperſtructure of the mountain, we cannot recur to any times known to hiſtory, but muſt go back to that moſt remote period in which the iſland was formed by ſubterraneous conflagrations.

We have now finiſhed the deſcription of the volcanic products of Stromboli; I mean the ſand, ſcoriæ, lavas, tufas, pumices, and ſpecular iron. Omitting this metal, the pu-

* See Chap. V.

mices,

mices, and the tufa, three productions which occupy only a ſmall corner of Stromboli, this iſland may be ſaid to be formed, as far at leaſt as externally appears, of ſcoriæ and lavas; and ſince theſe ſcoriæ and lavas have been ſhewn to derive their origin from porphyry rocks, partly with the horn-ſtone baſe, and partly with that of the petroſilex, it muſt be concluded, that the material origin and increaſe of Stromboli is to be attributed to porphyry, which, melted by ſubterranean conflagrations, and rarified by elaſtic gaſeous ſubſtances, aroſe from the bottom of the ſea, and, extending itſelf on the ſides, in lavas and ſcoriæ, has formed an iſland of its preſent ſize. Theſe porphyry rocks likewiſe ſtill furniſh matter for the preſent eruptions.

Before I conclude this chapter, I muſt not omit two enquiries which I conſider as of no little importance. In my reſearches relative to volcanos, I have propoſed as a rule, to ſubject the volcanized bodies to the action of the furnace, in order to compare the activity and manner of action of the ſubterranean fires with that of our common fire; and I have found this practice, and expect ſtill to find it, not a little inſtructive. But with reſpect to the Eolian iſles, which I have ſtudied with the greateſt attention, I have judged it proper to make other experiments of the following kind.

Having aſcertained, by various obſervations, the different kinds of primitive rocks, which by their fuſion have contributed to the formation of each of theſe iſlands; I reſolved to ſubject to the furnace, rocks of a ſimilar nature, but brought from countries not volcanic, remarking in what manner they are affected by our common fire, and thus make a compariſon of another kind, which muſt be of equal utility with the former.

To this enquiry, which has perhaps been firſt made by myſelf, I ſhall add another, relative to the accounts left us by the ancients concerning the conflagrations of Stromboli, which I ſhall ſtate and conſider. I ſhall proceed in the ſame manner with reſpect to the other iſlands, as an examination of theſe accounts will enable us to compare the preſent ſtate of theſe countries produced by ſubteraneous conflagrations with that of former times.

With reſpect to the firſt object of reſearch, as the principal materials of Stromboli derive their origin from rocks of porphyry, I ſhall briefly relate the reſults of experiments made on different kinds of this ſtone, in its natural ſtate, expoſed in the uſual manner to the furnace; and I requeſt my courteous readers to endure the fatigue of reading theſe experiments, ſince I endured the fatigue of making them.

I. This porphyry is Egyptian. Its colour is a dark red, its baſe compact; and its recent fractures fine and earthy. It gives ſparks plentifully with ſteel, and breaks into irregular peices. The baſe includes a few black, ſhining, linear and opake, ſhoerls; with abundance of feltſpars of two kinds; the one quadrangular, of a pale red colour, and almoſt opake; the other likewiſe quadrangular, but tranſparent and brilliant. It is well known that this porphyry takes a fine poliſh, which renders it very beautiful to the eye.

After remaining twenty-four hours in the furnace, it is perfectly fuſed; when it is changed into a black enamel, minutely ſpotted with aſh-grey points, which are feltſpars. Theſe, therefore, continue entire. This enamel abounds in pores, gives fire with ſteel, but leſs than the porphyry, has a lively luſtre, and is tranſparent in the angles.

If this ſtone remains in the furnace eight-and-forty hours ſucceſſively, it becomes a compact enamel, uniformly black, from the complete fuſion of the feltſpars, which then form with the baſe one homogeneous whole.

It has been the opinion of many celebrated naturaliſts, that the baſe of the Egyptian porphyry is a jaſper; but the eaſy fuſion of it in the glaſs-furnace convinces me of the contrary; and I find one of the moſt eminent of our modern lithologiſts agrees with me

in that concluſion. To obtain, however, as much certainty as poſſible, on this point, which I conſidered as important, I expoſed ſome jaſpers to the heat of the ſame furnace but no fuſion took place. The following are the reſults of my experiments on five different kinds of jaſper, which I expoſed, in ſmall fragments, to the fire of the furnace, during forty-eight hours.

The firſt jaſper was of the yellow colour of honey, interrupted with red ſtreaks, with a grain rather ſiliceous than earthy, and received a beautiful poliſh, though with little luſtre. This became lighter, extremely friable, of a colour approaching that of iron, the red ſtreaks having acquired that of ſealing-wax. No fuſion followed, except in ſome parts, which, being higher than the reſt in the crucible, had been more expoſed to the violence of the fire, and were covered with a very thin vitreous coating.

The ſecond jaſper was of the yellow colour of wax, of a fine grain, and ſiliceous, gave ſparks plentifully with ſteel, and took a very beautiful poliſh. This only underwent a conſiderable degree of calcination, by which it became light, friable, full of cracks, and of a blackiſh-brown.

The ſame colour, and the ſame calcination, without any ſign of fuſion, was obſervable likewiſe in a third jaſper, of a blood-red colour, of an appearance between the ſiliceous and the argillaceous, and leſs hard than the ſecond kind.

A fourth and fifth ſpecies equally reſiſted fuſion. One of theſe was of a dark-red, and the other of a mixed colour. Both were of a grain rather ſiliceous, gave ſparks with ſteel, and, like the other three, were entirely opake.

Theſe five kinds of jaſper were brought, ſome from Lower Hungary, and ſome from Germany; and all the five, as has been ſeen were infuſible in the glaſs furnace.

The experiments I have here deſcribed perfectly agree with thoſe of M. D'Arcet, who found the ſame infuſibility in four kinds of jaſper, notwithſtanding they were reduced to powder, and expoſed to the action of the moſt violent fire employed in the manufacture of porcelain. M. Mongez found this ſtone equally infuſible with the blowing-pipe.

Theſe facts, therefore, convince me that the baſe of the porphyry cannot be a jaſper; for, had it been, it would not have melted; I muſt add, likewiſe, that I obtained the ſame eaſy fuſion from two other kinds of oriental porphyry.

Dolomieu and Delametherie, who both agree that the baſe of the Egyptian porphyry is not jaſper, differ, nevertheleſs, as to what this baſe is, the former maintaining it is petroſilex, and the latter that it is horn-ſtone. The chemical analyſis, however, adduced by M. Delametherie of a red porphyry, ſimilar to mine, which ſhews its baſe to be horn-ſtone, induces me to prefer his opinion to that of the other French naturaliſt. I have not yet had leiſure to examine chemically the Egyptian porphyries which I expoſed to the action of the fire; but of this operation, which I certainly ſhall not omit, I ſhall give an account hereafter, when, in another part of this work, I ſhall have occaſion to ſay more of volcanic porphyries. At preſent, let us return to our ſubject.

II. This porphyry, which has the petroſilex for its baſe, is of a blueiſh red, of a grain moderately fine, angular in its fractures, of middling hardneſs, and heavy. It contains very brilliant quadrangular ſcales of feltſpar, and a few ſmall leaves of black mica.

In the furnace this ſtone produced a compact enamel which gave ſparks plentifully with ſteel, very even in its fractures, tranſparent at the angles, and of a dark cinereous colour, with ſome black ſpots, which were half-fuſed mica. The feltſpars remained entire, but calcined. This enamel, on the ſurface where the heat had acted with moſt violence, was inveſted with a very thin vitreous coating, which was ſemi-tranſparent, and of a topaz colour.

III. In

III. In this porphyry, the feltſpars, which were in round ſcales, but little brilliant, and of a yellowiſh colour, are included in a petroſiliceous ground, of a reddiſh brown, of a ſcaly fracture, and which contains points of ſteatites.

To melt it entirely, it requires a continuance of thirty-ſix hours in the furnace, when a dully tranſparent, hard, compact glaſs is produced, of the colour of the common chalcedony, in which the feltſpars are preſerved entire, though changed to a milky whiteneſs.

IV. The petroſilex, which is the baſe of the preſent porphyry, and which, both in its ſubſtance and grain, approaches very near to the common flint, is ſemi-tranſparent, of an olive green; its feltſpars are quadrangular, and of a changing aſpect.

It is infuſible in the furnace, except on the ſurface, which is changed into a tranſparent and compact glaſs, without the fuſion of its feltſpars.

V. The feltſpars in this porphyry are very brilliant and ſparkling; they are found in a petroſiliceous ground, of a pale roſe red, ſcaly, opake, and of moderate hardneſs.

In the furnace the feltſpars loſe, by calcination, the beauty of their changing colours, and their compactneſs from the number of cracks they contract: the petroſiliceous baſe is likewiſe tranſmuted ino a dully tranſparent glaſs, of the colour of ſoot.

VI. This porphyry is extremely compact, hard, and heavy. Its baſe is a clear red petroſilex, of an equal grain, ſmooth, and containing ſmall quadrangular ſcales of brilliant feltſpars.

A continuance in the furnace of not leſs than than forty-eight hours is neceſſary for this porphyry to acquire an imperfect vitrification. It is then tranſparent at the angles, of a black colour, and has loſt its natural hardneſs: the feltſpars it contains, however, ſhew no ſigns of fuſion.

Beſides the ſix porphyries already deſcribed, the baſe of which is petroſilex, I made experiments, in the ſame fire, on ſome ſpecimens of pure petroſilex, of which I ſhall not give a particular account, to avoid ſuperfluous prolixity. I ſhall only ſay, in general, that I found them refractory, that they abounded in ſilex, and that they formed, as it were, the point of tranſition of the petroſilex into the ſilex. On the contrary, all the reſt are more or leſs fuſible.

I likewiſe made ſimilar experiments on ſome natural porphyries, with the horn-ſtone baſe; many of theſe having likewiſe ſuffered the fires of Stromboli.

VII. The baſe of this porphyry is not ſufficiently hard to give ſparks with ſteel. It is of a dark grey, earthy, unequal in its fractures, ſoft to the touch, yielding a ſenſible argillaceous odour, and containing, beſides ſome grains of a cryſtal and pellucid quartz, a great number of white feltſpars, which being eaſily cut with a penknife, ſhew how great a change they have undergone from the influence of the ſeaſons and the atmoſphere.

The furnace changed this porphyry into a black ſcoria of little conſiſtence, and its feltſpars aſſumed a vitreous appearance, though without any ſenſible fuſion.

VIII. This ſtone, at firſt ſight, would rather be taken for a granite than a porphyry, as we find in it quartz, mica, and feltſpar, did we not obſerve that the three latter ſubſtances are united in a common cement or paſte, which is a horn-ſtone, rather ſoft, of a cinereous colour, and an argillaceous odour.

The three ſubſtances remain entire in the furnace; but the ground in which they are included is changed into a hard, black, and ſhining enamel.

IX. The baſe of this porphyry is a horn-ſtone of rather a fine grain, ſufficiently hard to give ſparks with ſteel, of a greeniſh colour, and emits a ſtrong earthy odour. Some of its feltſpars form rather large irregular maſſes of a brick red colour; and others ſmall quadrangular cryſtals of a light yellow colour.

This ſtone is changed by the furnace into a black enamel, moderately inflated, and hard. Its feltſpars, however, remain entire, only with the change of their red colour into a white.

X. The horn-ſtone of the preſent porphyry is laminated, of a ſmooth ſurface, eaſily cut with the knife, and of a reddiſh-green colour. Its feltſpars are rhomboidal; and ſome are four lines and a half in length and three in thickneſs.

In the furnace they remain unaltered; but the ground of the porphyry is changed into a black and hard ſcoria, full of little bubbles.

I ſhall omit the deſcription of many other porphyries, the baſe of which was in like manner horn-ſtone, and on which I made the ſame experiments, ſince the reſults were eſſentially the ſame with thoſe already ſtated. I ſhall only mention that theſe different ſpecies of porphyry, ſome of which had the petroſilex, and others the horn-ſtone for their baſe, were brought from thoſe parts of Hungary and Germany, where, according to the obſervations of ſcientific travellers, no traces whatever of volcanization are diſcoverable.

If we now compare the effects of the volcanic fires and our common fire on theſe various kinds of porphyries, we ſhall find that the principal difference is, that the furnace vitrifies them, deſtroying their original ſtructure, whereas the fires of Stromboli ſeldom change their natural lineaments. In both caſes we find the feltſpars, for the moſt part, remain infuſible; but what appears of moſt importance to the preſent object of our reſearch is, that the ſtones with a petroſiliceous baſe, as well as thoſe with that of horn-ſtone, may be fuſed is a ſtrong heat (ſuch as that of the glaſs furnace) and without its being neceſſary to have recourſe to the moſt vehement that can be procured.

From theſe experiments we learn, therefore, in what manner the ſubterranean fire of Stromboli, even though we ſhould not conſider it as extraordinarily active, may have been able to melt, and may ſtill continue to liquify, the rocks of porphyry which have exiſted, and ſtill exiſt, in the abyſſes of that mountain. The facility, likewiſe, with which its lavas may be re-melted in a glaſs furnace, is a ſtrong confirmation of the hypotheſis.

With reſpect to the time when this volcano began to exert its activity, and to melt theſe rocks, we are profoundly ignorant, this being an epocha anterior to all hiſtory. We muſt be contented with the imperfect accounts the ancients have left us of the conflagrations of Stromboli, which did not burſt forth in their time, but ages before. Of theſe accounts I ſhall proceed to give a conciſe view, this being the ſecond enquiry it was propoſed to make, and it will neceſſarily be brief, as the notices left us on this ſubject by the ancients are extremely few.

Euſtatius, Solinus, and Pliny, inform us that the flames of Stromboli are leſs powerful than thoſe of the other iſlands of Lipari, but that they exceed them in clearneſs and ſplendour. Theſe writers, however, were only the copiers of Strabo, or perhaps ſome abridgment of him, in which he is copied incorrectly. We ſhall therefore have recourſe to that celebrated Grecian geographer himſelf; who, after having mentioned Lipari and Vulcano, and informed us that Stromboli likewiſe burns, tells us that the laſt iſland compared to the others, is inferior to them in the violent eruption of its flames, but that it exceeds them in their brightneſs *.

It is evident, that by "the others," Strabo means Vulcano, which was the only one of the Eolian iſles, beſides Stromboli, in a ſtate of conflagration in his time. When I compare Stromboli with Vulcano, I perceive that, even now, there is this difference

* Ἐστι δὲ (Στρογγύλη) καὶ αὐτη διάπυρος, βίᾳ μὲν φλογὸς λειπομένη, τῷ δὲ φέγγει πλειονεκτοῦσα. Lib. vi.

between

between the two iſlands, that the flames of the former are much more reſplendent and lively than thoſe of the latter, as will appear when we come to treat of Vulcano; but I cannot ſay that thoſe of Stromboli are leſs violent, as the contrary is certainly the fact. We muſt, however, conclude, that, in thoſe ages, the eruptions of Vulcano were very ſtrong and frequent, which agrees with the teſtimony of Diodorus, and that of Agathocles as cited by the Scholiaſt on Apollonius; the former of whom aſſerts, that, in his time, Vulcano and Stromboli vomited great quantities of ſand and burning ſtones *, and the latter, that theſe two iſlands threw out fire, both by day and night †.

There is another circumſtance mentioned by the Sicilian hiſtorian which deſerves notice. This is, that a wind iſſues from both theſe iſlands with a great noiſe. This, in ſome meaſure, agrees with the obſervations I made at Stromboli; and is ſtill more applicable to the other iſland, as will be ſeen when I come to give an account of Vulcano.

Philip Cluverius, in his *Sicilia Antiqua*, ſpeaking of Stromboli, tells us that its crater is ſituated at the ſummit of a mountain, from which it pours forth, both by day and by night, with a horrible noiſe, bright flames, and great quantities of pumice ‡. In one of the plates prefixed to his work, this iſland is repreſented with the ſmoke riſing from the ſummit of the mountain.

Nearly one hundred and ſeventy-three years have now elapſed ſince this author travelled in Sicily. Ought we then to conclude, that, at that time, the mouth of the volcano was ſituated at the ſummit of the mountain? Had the learned antiquary himſelf viſited the iſland, I could not have objected to his evidence. But he not only does not ſay this, but the contrary may be inferred from his own words. Immediately after the paſſage I have already cited, he adds, "*ſed perpetui ejus ignes eminus navigantibus, nocte tantum, conſpiciuntur. Fumum eorum candidiſſimum ex Italiæ pariter ac Siciliæ littoribus conſpexi.*" It is therefore evident that he ſaw this volcano only from a diſtance, and that, conſequently, his aſſertion, that the fiery crater was ſituated at the ſummit, is not to be depended on. What he has ſaid of the pumices then thrown out by it, he may have taken on the credit of ſome of the natives who gave him that information, and who confounded the ſcoriaceous lavas with pumices; or it may in fact be true, ſince under the ſcoriæ and lavas of Stromboli, ſcattered pumices are found, as I have obſerved above.

From the authorities above adduced it appears, therefore, that the moſt ancient accounts of the conflagrations of Stromboli, tranſmitted to us by hiſtory, are prior to the Chriſtian era by about two hundred and ninety years, the date of the reign of Agathocles the celebrated tyrant of Syracuſe. This volcano burned likewiſe in the times of Auguſtus and Tiberius, when Diodorus and Strabo flouriſhed. But after this latter period, a long ſeries of ages ſucceeds, during which, from want of documents, we are ignorant of the ſtate of Stromboli, and it is not until the ſeventeenth century that we again know, with certainty, that it ejected fire; though it is not improbable that it continued to burn likewiſe during the times in which we find no mention of it in hiſtory: on which ſuppoſition, its uninterrupted conflagration, for ſo great a length of time, muſt indeed appear aſtoniſhing. Yet, though it ſhould have ceaſed for ſeveral ages, we know, from

* Ἐν δὲ τῇ Στρογγύλῃ, καὶ τὴν Ἱερᾶ, μέχρι τῶν νῦν, ἐκ τῶν χασμάτων ἐκπίπλει πνεύματος μέγεθος, καὶ βρόμος ἐξαίσιος. ἐκφυσᾶται δὲ καὶ ἄμμος, καὶ λίθων διαπύρων πλῆθος, καθάπερ ἐστὶν ὁρᾶν καὶ περὶ τὴν Αἴτναν γινόμενον. Lib. v.

† Αἰτιναι (Ἱερά καὶ Στρογγύλη) ἡμέρας καὶ νυκτὸς, πῦρ ἀφιασιν.

‡ Strongule hodieque liquidiſſimam flammam, et pumices magna copia, ex vertice, ubi craterem habet, noctes atque dies, cum fremitu horrendo, eructat.

various

various public teſtimonies, that its continued eruptions cannot have laſted leſs than two hundred years.

Here our curioſity may naturally be excited by the queſtion, What are the ſubſtances which, without diminution, have nouriſhed, during ſuch a number of years, and ſtill continue to feed theſe fires? I do not perceive that there is any reaſon to ſuppoſe them different from thoſe which furniſh fuel to the intermitting volcanos, except that their ſource appears to be inexhauſtible. It is believed, with much reaſon, that ſulphur produces and continues volcanos; and wherever theſe mountains burn, we have indiſputable proofs of its preſence. Still more effectually to explain theſe conflagrations, petroleum has likewiſe been called in aid; and, in fact, it has ſometimes been found to iſſue in the neighbourhood of a volcano, of which Veſuvius is an example *. The clouds of thick black ſmoke, which frequently riſe into the air from the mouths of volcanos, and the unctuoſity and ſootineſs, which are ſaid to be found in the recent ſcoriæ, ſeem likewiſe to be evident indications of ſome bituminous ſublimate.

That Stromboli contains within its deep gulphs and receſſes an immenſe mine of burning ſulphur, we can entertain little doubt, when we conſider the ſtreams of ſmoke, of extraordinary whiteneſs (a colour which conſtantly accompanies ſulphureous fumes) that riſe on the weſt ſide of the iſland, and the ſmell of ſulphur, not only perceptible from them, but from the large cloud of ſmoke which overhangs the ſummit of the mountain. The ſmall pieces of that mineral produced near the apertures whence thoſe fumes ariſe, are likewiſe another proof. But of the preſence of petroleum, and its effects, I have never perceived the leaſt ſign. Beſides that no vein of it is found in the iſland, nor any ever ſeen ſwimming on the ſea which ſurrounds Stromboli, as I was aſſured by the general teſtimony of the inhabitants, the ſmell of this bitumen is no where ſenſible, though naturally it is very acute. I have frequently viſited the ſources of petroleum, at Monte Zibio, in the territory of Modena, and I could always perceive the ſmell of their penetrating vapours, at the diſtance of ſeveral hundred paces before I reached them. I therefore conclude, that theſe vapours muſt have been much more ſenſible at Stromboli, as they would have been much more active, had petroleum actually burned within its gulph. I have likewiſe examined, with the greateſt attention, the ſcoriæ thrown out by the volcano, and while they were very hot; but I never could perceive that they emitted, either from their ſurface, or within their pores and cavities, the leaſt ſmell of that bituminous ſubſtance, or that they any where exhibited any unctuous humidity. As I knew that the ſmoke which exhales from burning petroleum is of a blackiſh hue, I ſuſpected that the thick and dark column of ſmoke, which aroſe to the eaſt of the volcano, might be a ſign of its preſence; but, on a nearer approach, I perceived that its darkneſs proceeded from aqueous vapours which were mixed with it, and which, by my continuing a ſhort time in it, rendered my clothes damp and wet.

Shall we then affirm that the fires of Stromboli receive no kind of aliment from this bitumen? Notwithſtanding the obſervations I have ſtated, I would not venture confidently to deduce ſuch a concluſion; ſince it is poſſible that the petroleum may burn under the mountain, at ſo great a depth, that its vapours may not reach to the top, but may be diſperſed and conſumed by the fire, and the immenſe maſs of liquified matter, which probably extends from the crater to the loweſt roots of the iſland.

But though we ſhould not admit the exiſtence of this oil within the deep receſſes of the mountain, I do not perceive but the ſulphur alone may be ſufficient for the nouriſh-

* Serao, Iſtoria dell' Incendio del Veſuvio, del 1737. Bottis, Iſtoria di varj Incendj del Monte Veſuvio.

ment

ment of the volcano, when its flame is animated by oxygenous gas, the preſence of which, in volcanic abyſſes, ſeems undeniable, from the ſubſtances they contain proper to generate it, when acted on by the fire. The long duration, without intermiſſion, therefore, of theſe conflagrations, may be very ſufficiently explained by the immenſe quantities of ſulphur, or, to ſpeak more properly, ſulphures of iron which we muſt neceſſarily ſuppoſe contained in the bowels of the mountain; a ſuppoſition rendered the more probable by the prodigious ſubterranean accumulations of this mineral which have been diſcovered in various parts of the globe.

CHAP. XII.—BASILUZZO, BOTTERO, LISCA-BIANCA, DATTOLO, PANARIA, SALINE.

Baſiluzzo, in part, formed of granitous lavas.—Its ſterility.—Uninhabited.—Bottero and Liſca-Bianca, two rocks, in many places decompoſed by acid vapours.—Sulphurated hydrogenous gas (hepatic gas) iſſues from the ſea near theſe rocks, which ſtill probably, cover the remains of fire.—Dattolo formed of lavas in a great meaſure decompoſed.—Panaria formed of granitous lavas.—This iſland fertile and inhabited.—Probability that this group of rocks and ſmall iſlands are the remains of a vaſt ancient volcano.—Saline formed by an accumulation of currents of lavas.—Courſe of theſe currents to the ſouth of the iſland.—Their various ſtratification and nature.—Some remains of craters on the ſummit of this iſland.—Reſult of experiments in which natural granites were expoſed to the furnace, to compare them with thoſe which, by the action of ſubterranean fires, have contributed to the formation of Baſiluzzo and Panaria.—An extremely ſtrong fire required for their fuſion.—A fire equally ſtrong required for the re-fuſion of theſe granitous lavas.—Conſequence which appears naturally to follow from the great violence of the volcanic fires required to produce the granitous lavas of theſe two iſlands.

THOUGH this chapter will contain an account of ſeveral iſlands, it will be very ſhort; ſince ſeveral of them are rather rocks than iſlands, and they have all been ſo carefully examined by the Commendator Dolomieu that little remains for me to add to his obſervations. The firſt five are ſituated between Lipari and Stromboli, and it is manifeſt to ocular inſpection that they are the work of fire.

Baſiluzzo is about two miles in circumference, and is raiſed ſome poles above the ſurface of the ſea. On the ſouth ſide is a narrow bay, which I entered on the morning of the 7th of October, on my return from Stromboli to Lipari. I went on ſhore, and, by a winding path, ſoon reached the ſummit, which is a plain of no great extent, and the only place capable of cultivation, though it produces only a little corn and pulſe. This ſcanty vegetation is nouriſhed by a thin cruſt of decompoſed lava, under which we ſoon diſcover the ſolid lava, which, in many ſituations, is granitous, the quartz, feltſpar, and mica, being very apparent in it; as has been before obſerved by the excellent French Naturaliſt above mentioned; and on making the circuit of the iſland we find that almoſt all the remainder of it is compoſed of ſimilar lavas.

Two little cottages which belong to the proprietors of this ungrateful ſoil are the only buildings here. Near them are ſome ancient ruins, amongſt which I found a piece of red porphyry, ſpotted with reddiſh feltſpars. I at firſt imagined it a volcanic product, but ſoon changed my opinion; ſince I could not find any ſpecimen of the ſame ſtone on the whole iſland, and becauſe I was convinced, on a more careful examination, that the fragment in queſtion was an ancient Egyptian porphyry, which had been poliſhed by art, and had never been expoſed to the action of the fire. I was therefore

induced to believe, from the circumſtances of the place in which I found it, that it had either made a part of the materials of ſome of thoſe ruined edifices, or, which ſeemed more probable, that it had been brought thither by the people who had once inhabited them.

Rabbits are the only animals found in Baſiluzzo; but theſe had nearly reduced to deſpair the few inhabitants of the iſland, by the miſchief they did to their corn, till they at laſt brought againſt them an enemy capable of following them through their ſubterranean holes,—I mean the cat.

From Baſiluzzo I proceeded to Bottero and Liſca-Bianca, two rocks abounding in cruſts of ſulphate of alumine (alum), and for the moſt part formed of lavas whitened, and ſo decompoſed that they are eaſily reducible to powder. This decompoſition has manifeſtly been the effect of acid vapours, though of theſe there is at preſent no ſign; except that near theſe two rocks we meet with a ſtrong ſmell of ſulphurated hydrogenous gas, and following it where it is moſt powerful, are led to a ſhallow part of the ſea where a great number of air-bubbles riſe with rapidity, and as ſoon as they reach the ſurface burſt. This gas it is which produces the ſmell.

The ſea could not have been more favourable for the collecting this aëriform fluid; ſince when I ſailed from Lipari to Stromboli it was ſtormy and ran high, but on my return was perfectly calm. I ſecured, therefore, a ſufficient quantity of it in ſome flaſks, which I had taken with me in my journey through the two Sicilies, in order to make ſome experiments on it when I ſhould arrive at Lipari, the reſult of which I ſhall here, as it ſeems the proper place, lay before the reader.

This gas, when a lighted candle was applied to it, roſe in flame, but with ſcarcely any detonation. It took fire ſlowly; and the flame was of a reddiſh blue. It was therefore a ſulphurated hydrogenous gas, as more evidently appeared from its having depoſited ſome particles of ſulphur in the veſſel in which it was fired. The little depth of the ſea at the place from which this gas iſſued, and its perfect calmneſs, enabled me to make another experiment, by letting down, by means of a ſmall cord, preciſely on the place from which this gas roſe, one of thoſe thermometers, which, in conſequence of being included within ſeveral wrappers, ſlowly receive, and loſe as ſlowly, the temperature to which they may be expoſed. After having left one of theſe immerſed under the water for three quarters of an hour, I found, on drawing it up, that the mercury had riſen to 28 (96¼ of Fahrenheit), though in the atmoſphere above the ſurface it only ſtood at 20½ (69 of Fahrenheit). A hot exhalation therefore aroſe from that part of the bottom together with the ſulphurated hydrogenous gas; an obſervation which renders it probable that a latent fire ſtill remains there. The depth of the water was eleven feet; and it was evident that the bottom was a continuation of the rock Bottero.

Scarcely a mile from Liſca-Bianca and Bottero, towards the weſt, a third rock riſes above the water, named Dattolo, the formation of which is likewiſe to be aſcribed to lavas, in a great degree decompoſed like the former, and ſome of which have an iron-red colour. M. Dolomieu ſays, that a ſpring of boiling water guſhes out at the foot of it; but all my endeavours to diſcover this ſpring were fruitleſs. The ſailors who managed the boat in which I was, and who were natives of Stromboli, and, from making the paſſage from their iſland to Lipari, ſeveral times in a week, muſt be acquainted with every part of that ſea, and all the rocks it contains, aſſured me that they had never ſeen nor heard of any ſuch ſpring. I ſhall not, however, venture to deny its exiſtence, but am rather willing to believe, that neither they nor I diſcovered it from want of attention. Suppoſing its reality, it certainly is a proof that the conflagration under theſe rocks is not entirely exhauſted.

Proceeding ſtill from Stromboli towards Lipari we next arrive at Panaria, which is not a rock but an iſland, in circuit more than eight miles, though it is but little raiſed above the ſea. The rock of which it is conſtructed is here, likewiſe, volcanic granite; but as it is in many places ſuperficially decompoſed, and in others mixed with ſubſtances very eaſily decompoſable, a rich ſoil is afforded in various parts of the iſland, on which olives, and other fruit-trees, cultivated by many families reſident here, luxuriantly flouriſh.

We muſt therefore aſcribe the origin of this group of rocks and iſlands to ſubmarine conflagrations. But are we to conclude that each of them owes its formation to a particular volcano, or that theſe rocks and ſmall iſlands are no other than the remains of a very ancient larger iſland, in a great degree deſtroyed by the powerful action of the waves of the ſea? M. Dolomieu is of the latter opinion, in ſupport of which he adduces many plauſible arguments, conjecturing that this iſland was the ancient *Euonimos*, the ſeventh of the Eolian iſles, which, according to Strabo, lay on the left in ſailing from Lipari to Sicily, which is exactly the ſituation of the ſmall iſlands I have deſcribed. I ſhall not repeat the reaſons by which he ſupports this conjecture, but refer ſuch of my readers as may be deſirous of examining them to the author's own work.

Late in the night of the ſame day I returned to Lipari, where I had my reſidence, and whence, from time to time, I made excurſions to the other neighbouring iſlands. As the ſea was perfectly calm during the whole of that day, we could make no uſe of our ſails but were obliged to perform the whole paſſage by the aſſiſtance of our oars. So great a calm in that ſea, which is uſually tempeſtuous, is extremely rare; and, indeed, during my whole continuance among theſe iſlands, I did not witneſs ſuch another day.

In the morning I embarked for Saline, which is ſo near to Lipari, that, by the aid of a light earſterly wind, I arrived there in leſs than an hour. This iſland derives its name of Saline (or the ſalt pits) from the muriate of ſoda (ſea ſalt) which is dug on one part of the ſhore. It was anciently called *Didyme*, or the twin, from its appearing at a diſtance bifurcated, though on a nearer approach it is found to be trifurcated, as its ſummit terminates in three points. Among all the Eolian iſlands, this, after Lipari, is the largeſt, ſince it is more than fifteen miles in circuit. From the examination which I made of its ſhores, and the parts of a moderate elevation, I aſcertained that its ſtructure was an accumulation of currents of lavas. Of theſe M. Dolomieu has examined and deſcribed ſeveral: I principally fixed my attention on thoſe which deſcend from the ſouth ſide of the iſland to the ſea. It is evident that they have flowed from the ſummit of the mountain, and fallen almoſt perpendicularly into the ſea, after a courſe of a mile or more. But it is, at the ſame time, equally evident that theſe currents have flowed at different periods. In many places they are found with deep fiſſures, though it is difficult to ſay, whether theſe have ariſen from the lavas ſuddenly congealing, and thence contracting and opening in many places or whether they have been produced by the action of the rain waters or by ſome other cauſe. However this may be, theſe fractures are a kind of anatomic diſſections of the lava, which ſhew that the upper coat of it lies upon another, and that upon a third, below which are many others. It is alſo to be remarked that theſe ſtrata are commonly ſpecifically different from each other. We muſt therefore conclude, that as many currents of lava have flowed from the higheſt part of the mountain, to the ſouth, as there are diſtinct ſtrata; and it is probable, that were we able to penetrate to the moſt internal part of the iſland, we ſhould find the whole, or almoſt the whole of it, of a ſimilar formation.

This certainly is the ſtructure of almoſt all volcanic mountains. Their beginning is but ſmall, and proportionate to the quantity of the firſt eruption; but as the ſucceeding

eruptions increaſe in number and extent, they augment in ſize and ſolidity, till in time they acquire conſiderable dimenſion. In this manner, in fact, appears to have been produced the immenſe bulk of Etna, Veſuvius, the iſlands of Lipari, and many other burning mountains. I do not, however, deny that there are ſome which are the offſpring of a ſingle eruption, as Monte Nuovo, near Pozzuolo, and Monte Roſſo, on the ſide of Etna.

It appears to me ſuperfluous to particularize the different qualities of the lavas, ſince, as has been obſerved by M. Dolomieu, they are common to other volcanos. I ſhall only remark, in general, that I did not find one which can properly be called ſimple, as they all abound, more or leſs, with feltſpars and ſhoerls, and have for their baſe the petroſilex, and the horn-ſtone.

No traces, at preſent, remain of thoſe volcanic fires which have produced Saline, except the currents of lava, and ſome veſtiges of ancient craters on the ſummits of the mountain.

When treating of Stromboli, we found that the natural rocks, which, by their fuſion, gave birth to the iſland, were a ſpecies of porphyry, having for their baſis either the petroſilex or the horn-ſtone. We have now ſeen that the rocks to which Saline owes its origin are of the ſame kind. But the formation of Baſiluzzo and Panaria has been different; the rocks which have there been converted into lava by the action of the fire being granitous; and it ſeems probable that the ſpacious volcano, which it has been conjectured, once aroſe in the ſea between Stromboli and Lipari, and of which, at preſent, only ſome ſmall remains exiſt in Baſiluzzo, Dattolo, and Panaria, derived its origin from the ſame ſtone.

In purſuance of the plan I have preſcribed to myſelf of ſubjecting to our common fire ſome natural rocks ſimilar to thoſe from which the Eolian iſles have been formed, I ſhall here deſcribe the effects produced by the furnace on different ſpecimens of granite; and I muſt add, likewiſe, that the difficulty with which, it is well known, granites are fuſed in our common fires, was to me a conſiderable inducement to make theſe experiments.

The furnaces which are worked at Pavia, at a certain ſeaſon of the year, only fuſe common glaſs, that is, ſuch as is blown into ſmall veſſels, and is but little tranſparent, of a yelloviſh or greeniſh colour, and uſually full of bubbles; but at another ſeaſon they will melt fine cryſtal glaſs, manufactured for the ſame purpoſes, and which is white, tranſparent, and much purer. The greater part of the volcanic productions mentioned in this work, as alſo the analogous natural ſtones, have melted in the furnace in which common glaſs is made; but the ſpecimens of granite have proved more refractory, and in the ſame degree of heat have only been rendered friable from the enfeebled affinity of their aggregate parts; or, at the utmoſt, a few of them only have been found covered with a thin vitreous varniſh. I was therefore obliged to have recourſe to the furnace in which the cryſtal glaſs is elaborated, when the heat was nearly 87$\frac{1}{8}$ degrees of Wedgwood's pyrometer, or, according to the obſervations of Mr. Wedgwood, only 2$\frac{1}{2}$ degrees leſs than the welding heat of iron. The following are the reſults afforded by ſeveral ſpecies of granite, after having been continued in this heat during forty-eight hours.

I. Granite of Mount Baveno, in the Milaneſe. This granite, which forms a great part of the materials of the principal public and private edifices in Milan, Pavia, and other towns in Auſtrian Lombardy, has for its conſtituent principles, quartz, mica, and feltſpar. There are two varieties of it; one, in which the feltſpar is white, and the other, in which it is of a more or leſs deep fleſh colour.

The

The fire changed the mica, and produced a beginning fuſion in both the varieties of feltſpar, which abounded with microſcopic bubbles, without however acting as a flux to the quartz, which, calcining, acquired a whiteneſs, without, however, loſing its vitreous nature, and the degree of tranſparency it poſſeſſed. The ſharp angles and projections, if they are feltſpathoſe, become blunted and round; and the fragments, if there are more than one, adhere in conſequence of the ſlight fuſion of the feltſpar, but they never incorporate into one maſs within the crucible; on the contrary, they become extremely friable.

II. Mount Baveno likewiſe produces a granite which may be conſidered as a different ſpecies from that now deſcribed, and which is equally uſed in buildings. It is ſchiſtous, and eaſily ſeparates into large flakes. The mica, which is of a ſhining black, inſtead of being diſperſed within it in ſeparate ſcales, extends in broad leaves, placed one over the other; and the quartz and feltſpar are frequently diſtributed in flakes.

This granite loſes its ſolidity in the fire, without fuſion; but the mica and feltſpar ſhew evident ſigns that they have been ſoftened.

III. Granites of the Italian Apennines. Though a conſiderable part of the Alps which ſurround Italy abound with theſe rocks of the firſt formation, they are very rare in the Apennines, which are principally formed of calcareous ſtone, ſand, ſand ſtones, and ſteatites. In the various excurſions which I have made to different parts of them, I have rarely found this ſtone, and never but in very ſmall quantities and detached pieces, without being able to diſcover whence they came. In the ſpring of the year 1790, I collected ſome of theſe ſcattered pieces in the river Stafora, at the foot of a hill, a few miles from the town of Voghera. They were of three ſpecies: the following are the diſtinguiſhing properties of the firſt.

Its conſtituent principles are four: the quartz, of the colour of water, ſcattered in ſmall but numerous pieces; the black mica, in few and extremely minute flakes; the feltſpar, rather abundant, and of the colour of honey; and very ſmall ſhoerls, included within the feltſpar.

The pieces, except they adhered together, retained, when they came out of the fire, the ſame figure they had before, though the feltſpars were a little, and the ſhoerls entirely fuſed.

The ſecond of theſe granites, with reſpect to its component principles, is ſimilar to the common, conſiſting of mica, feltſpar, and quartz; but it is one of the hardeſt and moſt beautiful that I have ſeen, and takes a very elegant poliſh.

In the fire the quartz becomes almoſt pulverulent, the feltſpar aſſumes a ſlightly enamelled ſurface, and the fuſion of the black mica covers the pieces with a thin coating which has an unctuous appearance.

The third granite has for its component principles ſemi-tranſparent quartz in ſmall and rare grains, and feltſpar in large and numerous particles.

In the furnace the quartz becomes friable, but in the feltſpar we only perceive ſigns that it is ſoftened.

IV. In Chapter XI. I have mentioned an Egyptian porphyry which was expoſed to the fire. I ſhall now add that this ſtone, from porphyritic that it was, became in many places granitous. In conſequence, therefore, of forcible ſeparation, or inſenſible alteration, the maſs of porphry may be loſt, and ſucceeded by the granite, compoſed of ſhoerls, abundant feltſpars, and argillaceous particles.

In the furnace, this granite imperfectly fuſes into an ebullient ſcoriaceous enamel.

V. This granite, as it contains ſulphure of iron, and red ſulphurated oxyde of mercury (cinnabar), merits a particular deſcription. It forms a mountain in the diſtrict of Feltre, in the Venetian territory; to the eaſt of which lies the *Valle Alta*, to the weſt

the *Acqua Pezza*, to the fouth the *Boſco delle Monache*, and to the north *Vallone*. Some years paſt, this rock was dug in, and perhaps is ſtill; not to employ it in building, but to extract the mercury with which it is impregnated, and of which it furniſhes fifteen parts out of a hundred. This intereſting information I received from Signor Franceſco Antonio Tavelli, ſtudent of natural hiſtory, under whoſe directions theſe excavations were undertaken, in the year 1786. He furniſhed me with ſeveral fine ſpecimens of this rock, which I immediately perceived to be granite. Its component parts are quartz, in cryſtallized grains; feltſpar, in lamellar, ſemi-tranſparent, whitiſh ſcales; and ſteatites. The latter does not form a paſte, or common cement, which conglutinates the quartz and feltſpar but is diſtributed in ſuch a manner, that theſe three conſtituent parts adhere together ſolely by the force of attraction. The ſteatites is ſoft and ſchiſtous, and of a dark green colour. This is the only part of the granite to which the ſulphur has penetrated; to free it from which, it is neceſſary to break it into ſmall pieces. The ſulphur, therefore, has ſometimes mineralized the mercury and ſometimes the iron. Some parts, however, of ſeven or ten lines, and frequently even an inch and a half, or two inches, in thickneſs, are of a lively red, though the ſteatites has loſt its peculiar texture; and theſe parts, as they abound moſt with mercury, are the heavieſt. The reſt, on the contrary, are lighter, as they contain a leſs quantity of this metal; and hence, likewiſe, their colour is of deeper or paler red. In the midſt however of this diverſity of tints, the feltſpar and quartz ſeem to have been impenetrable by the ſulphur, and, in the reddeſt places, ſtill preſerve their natural colours and reſpective degrees of tranſparency. But in other parts of the ſteatites, the ſulphur has mineralized the iron, producing ſulphure of iron. This is of a braſſy yellow, and ſufficiently ſoft to decompoſe in the air, efflureſcing, and emitting ſulphate of iron (vitriol of iron). About four years ago, I received from Signor Tavelli at Venice ſome pieces containing this ſulphate, which I put into a box; and a few months after found them to be broken, and covered with a yellowiſh efflureſcence. When touched with the point of the tongue they occaſioned a ſtrong aſtringent taſte, from the preſence of this ſulphate (vitriol), which, in fact, is likwiſe procured from that rock.

When this granite came out of the furnace, the ſteatites and the feltſpar were blended into one porous ſcoriæ, but the quartous grain remained unfuſed.

VI. The experiments on Numbers IV. and V. are, however, leſs to the purpoſe, ſince, if we ſhould compare, by the means of our common fires, the granites which are found fuſed at Baſiluzzo and Panaria, the conſtituent parts of which are feltſpar, mica, and quartz, and the natural granites; the latter muſt neceſſarily be found to conſiſt of the ſame principles. I have already, as has been ſeen, made the proof with ſeveral, nor did I neglect to do the ſame with five other ſpecies, which I do not deſcribe that I may not tire the reader. I ſhall only ſay, in general, that the quartz was always infuſible; the mica, in two inſtances melted; and the feltſpar, every time, gave ſigns of a beginning liquefaction; which occaſioned the pieces in the crucible to adhere together, but without forming a conſolidated whole, as the effect of complete fuſions.

VII. As M. Dolomieu has remarked that the Eolian iſles have a part of their baſe of granite, I endeavoured to diſcover from what places it might derive its origin; and, after ſeveral laborious reſearches among the mountains of Sicily, concluded that it proceeded from rocks of the ſame ſpecies, extending to the mountains of *Capo di Melazzo*, which are in part formed of granite and have likewiſe their direction towards this iſland.

In my paſſage from Lipari to Meſſina (a diſtance of about ſixty miles) I made ſome ſtay purpoſely at this cape, which lies about the midway, judging it to be of importance to examine the nature of the place; and I, in fact, found there granite.

* Mica,

Mica, ſometimes black, and ſometimes of a ſilver colour; blueiſh, and ſometimes milk-white quartz; and reddiſh or whitiſh feltſpar, are the three component parts of this granite, ſometimes diſtributed nearly equally, and ſometimes in very unequal portions. Sometimes, though rarely, the mica is hexagonal; and the feltſpar ſhews a beginning cryſtallization.

This granite is not found in ſtrata, but large maſſes, which form a conſiderable part of Cape Melazzo and its environs, and in many places extend quite to the ſea. Here, likewiſe, we diſcover, under the water, the ruins of a very ancient edifice, built of this ſtone.

As, therefore, it appeared extremely probable that this granite was the ſame with that of which Panaria and others of the Lipari iſlands are compoſed, it was more particularly requiſite that the ſame experiment ſhould be made on it in the furnace, which had been made on the other ſpecies; and ſince the proportions of its three elementary parts varied in it, I took five varieties, and placed ſmall pieces of each in ſeparate crucibles.

The reſult was, that the mica became more fragile, the feltſpar exhibited ſome ſigns of fuſion, and the quartz loſt its tranſparency and became full of flaws. The pieces, however, all retained their original form.

VIII. In Panaria, and ſome parts of Baſiluzzo, are found pieces of granite, in which the fire appears not to have cauſed the leaſt alteration; and yet there is every reaſon to believe that they have been thrown out of the mouths of volcanos, though they are ſtill in the natural ſtate in which they are found in the bowels of the earth. This granite in its three conſtituent principles, and the qualities of each of them, extremely reſembles that of Melazzo. It likewiſe reſembles it in its reſiſtance to the fire, as only ſome traces of fuſion in the feltſpars are obſervable.

IX. Laſtly, I made ſome experiments on certain ſpecimens of granitous lavas, which have formed currents at Panaria and Baſiluzzo; but the reſult was not more ſucceſsful than with the other granites: they entirely reſiſted the fire, except that the feltſpar was in ſome places thinly covered with a kind of enamel varniſh. This was one of the very few lavas which was not fuſible in the glaſs furnace.

Theſe facts ſufficiently prove that theſe granites, ſuch at leaſt as are compoſed of quartz, feltſpar, and mica, are infuſible in a heat of $87\frac{1}{8}$ degrees of the pyrometer of Wedgwood, though continued in it for forty-eight hours; a heat which, as has been ſaid, is only $2\frac{1}{2}$ degrees below that in which iron begins to fuſe, which is at 90 degrees of the ſame pyrometer. I determined, therefore, to expoſe theſe ſtones to that degree of heat, or even a greater, having recourſe to a wind-furnace in which iron is completely melted. In this, in leſs than an hour, a fuſion took place which was perfect or little leſs in the feltſpars, and beginning and ſometimes complete in the mica; but the quartz ſhewed no ſigns of liquefaction. When, therefore, the quantity of the feltſpar was greater than that of the two other component parts, the pieces in the crucible formed one ſingle maſs, with a ſmooth ſurface, either uneven, concave, or convex, in the ſame manner as in the fuſion of lavas. The maſs, however, was not homogeneous. The feltſpar, whatever was its colour, became of a milky whiteneſs, extremely ſmooth and ſhining, and conſiderably harder. It is remarkable that the mica which, in ſome granites, was of a ſilver whiteneſs, and in others of a gold colour, is changed in conſequence of its fuſion to a deep black *.

Theſe

* I ſhall here add a remark, which I had intended to make in the introduction to this work, but which will not be improperly placed here. As in theſe fuſions I make uſe of crucibles of clay, it may be objected to me, that I am not certain whether the ſubſtances on which I made my experiments were fuſible in themſelves,

Theſe experiments when compared and conſidered muſt lead us to conclude that the fuſion of granites requires a very violent heat; and with theſe experiments likewiſe agree thoſe made on ſtones of the ſame kind by MM. D'Arcet, Gerhard, and Sauſſure. I have ſaid *in general*, ſince I do not deny that, in a leſs intenſe fire, the fuſion of the feltſpar may be obtained, in ſome ſpecies of granite, which may draw after it that of the quartz *. Though in the almoſt endleſs varieties which I fuſed and have deſcribed in this work, the feltſpars in general were refractory; yet they ſometimes eaſily melted in the furnace uſed at Pavia for the manufacture of common glaſs, the heat of which, as has been ſaid, is much leſs than that employed in making cryſtal glaſs. This has been proved in the feltſpars of the lavas of Iſchia, which, whether mechanically united to other ſubſtances, or ſingle, completely fuſe †. The facility with which ſome few feltſpars melt, and the refractorineſs of others I have found to proceed from the different quantity of ſilex they contain combined with other earths, which is ſmall in the former, and very abundant in the latter. If therefore a granite which has for its baſe the feltſpar contain but a ſmall portion of ſilex, there is no doubt but its fuſion may be obtained with a moderate heat. It is, however, certain, from the experiments above adduced, that completely to fuſe the feltſpar in the granite of Cape Melazzo, and in the detached pieces of a ſimilar kind found at Panaria and Baſiluzzo, as alſo that which conſtitutes the baſis of the lavas of theſe two iſlands, not to mention other ſpecies which have been enumerated, a very ſtrong heat is neceſſary, and equal to that required to melt iron.

It hence appears to be ſufficiently proved that the volcanic fires which have produced Baſiluzzo, Panaria, and the other neighbouring iſlands, muſt have been extremely violent; the importance of which deduction will more diſtinctly appear when we come to conſider the queſtion relative to the activity of volcanic fires in general.

ſelves, or in conſequence of their combination with the clay of the crucible. But I anſwer, in the firſt place, that this combination rarely happened; and that when it did, it was too conſpicuous not to be perceived, as the crucible was more or leſs corroded. Secondly, that I did not form my judgment of the fuſibility of the ſubſtances I examined, from the parts of them in contact with the crucible, or at a little diſtance from its ſides; but from thoſe near the middle, where, from the diſtance, this combination could not have place, as the circular mouth of the crucibles I uſed was two inches in diameter. When, therefore, I ſpeak of the fuſion of any product, I conſider myſelf as perfectly certain that the clay of the crucible had no part in it.

* Morveau, in a letter to the Comte de Buffon, writes, that two pieces of different kinds of granite, being placed ſeparately in the crucible, in leſs than two hours melted into a homogeneous glaſs (Buffon Miner. t. i. in 12.): but he neither ſpecifies the conſtituent parts of the two granites, nor the degree of heat neceſſary to fuſe them.

† See Chap. V. near the end.

CHAP.

CHAP. XIII. — VULCANO.

Different parts of this iſland diſtinctly viſible from the ſummit of the Monte della Guardia, in Lipari.—Shore of the iſland entirely formed of volcanic productions.—Vulcanello, a ſmall iſland, once ſeparated from Vulcano, but long ſince united to it by an eruption.—Two ſingular lavas of Vulcanello.—Its crater.—Surrounded by ſulphureous fumes and hot exhalations.—Lumps of ſulphur found in the earth through which theſe fumes paſs.—Grotto celebrated for a medicinal water which it contains, and other peculiarities.—Summit of the mountain ſcattered over with vitreous lavas, pumices, and glaſſes.—The tranſition of the pumice into glaſs diſtinctly obſervable.—Hot ſulphureous exhalations on the ſide of the mountain which has the figure of a truncated cone.—The ſtones found there, whitened and decompoſed.—Other ſimilar fumes higher up the mountain.—Subterranean noiſe heard there; with a ſhaking of the earth when ſtruck with the foot.—Sulphur formerly extracted at Vulcano by the Lipareſe, and purified on theſe heights.—This profitable labour now abandoned, and why.—New ſulphur re-produced where it had been dug up.—The larger crater of Vulcano ſituated at the ſummit of the truncated cone.—Deſcent of the Author into the crater.—Its interior deſcribed.—Subterranean noiſe heard at the bottom of the crater.—Wind which blows at the bottom generated by ſulphurated hydrogenous gas.—Extreme heat of the bottom.—A kind of hill in the middle of it exhaling a quantity of vapours, and incruſted with various minerals.—Reverberated ſound produced in it by the falling of a ſtone.—Gulph immediately under it in which a ſtrong fire burns.—Blueiſh ſulphureous flames ſeen by night riſing from this bottom.—A cavern of conſiderable ſize hollowed in the ſides of the crater, which deſcends to the bottom.—Objects moſt deſerving notice in this cavern.—Glaſſes and pumices of this volcanic bottom decompoſed by ſulphureous acids.—Priſmatic or baſaltiform lavas, which derive their origin from fire, diſcovered within it.—Erroneous opinion of M. Sage that the decompoſition of the lavas, and other volcanic productions, is to be aſcribed to the muriatic acid.—Demonſtrative proof that theſe decompoſitions are the effect of ſulphureous acid vapours.—Incidental notice of another error of that chymiſt, relative to the Grotta del Cane, near the lake Agnano.

AS from the top of a lofty tower which overlooks a ſpacious and noble city, we command a perfect view of the latter, its circuit and extent, its lofty and ſumptuous palaces, and its numerous edifices; in like manner, from the ſummit of the Monte della Guardia, one of the higheſt mountains in the iſland of Lipari, we contemplate with aſtoniſhment the circumference, the maſſy body, and the various diſtinct parts of the neighbouring Vulcano.

To this mountain I, therefore, repaired, expreſsly to take a comprehenſive view of the iſland previous to my viſiting it; in which, beſides the courſe and inclination of its rocks and cliffs, its craters are clearly perceivable, and it may be diſtinctly ſeen that the form of the larger is that of a truncated cone. The white fumes which aſcend from it are likewiſe very viſible by day, while by night the atmoſphere above the crater aſſumes an obſcure redneſs. Here too, we may moſt diſtinctly perceive the junction of Vulcano to Vulcanello; which latter, as is well known, was anciently an iſland ſeparated from Vulcano by a narrow arm of the ſea, that has ſince been filled up with earth by a violent eruption. The new land which has joined the iſlands may be very clearly ſeen, and appears to be formed of a ſterile ſand. The two ſmall havens at its extremities, one of which is called the eaſtern, and the other the weſtern, are likewiſe diſtinctly viſible.

Such was the anticipated pleaſure afforded me by this mountain, which was afterwards ſtill more increaſed, and accompanied with ſtill greater inſtruction when I coaſted the iſland in a boat. Its ſhore is about eleven miles in circuit, and every were preſents to the eye the traces of fire, in the remains of ſtreams of lava, enamels, vitrifications, puzzolanas, and pumices.

Vulcanello has long made a part of Vulcano, but is ſtill perfectly diſtinguiſhable from it by the interpoſed land. It has the form of a ſcalene triangle, two ſides of which ſink abruptly into the ſea, and merit examination more than any other parts of the ſhore. They conſiſt of many ſtrata of lava, ſeveral feet high, and piled one above the other. When they flowed, they muſt certainly have extended farther into the water; but they have been broken, gradually, by the violence of the waves; and their fractures now form a kind of wall of a great height, which deſcends perpendicularly into the ſea. As the water here is ſhallow, the bottom may be ſeen ſcattered over with large pieces of theſe lavas; and the wall, on a near approach, preſents to the eye a number of currents of lava, which have flowed at different times, and differ in their colour, component parts, and conſiſtence.

The appearance of theſe currents of lava, which have flowed one over the other, reminded me of what I had obſerved ſeveral years ago, in the glaciers of Switzerland; where ſome parts of the ſnowy coating being broken, the different ſtrata of ſnow, which had fallen at different times, are diſtinctly diſcernible by the difference of the colour.

As the greater part of theſe lavas differ very little from thoſe of other volcanos, I ſhall not give a deſcription of any of them except two only, which appear to me not to be common.

The firſt lies buried in the midſt of the others, and would, therefore, only become viſible by cutting them away, did not the ſuperincumbent lavas, which are in ſeveral places broken, diſcover it in thoſe fractures. In its ſuperficial parts it is a true enamel, very black and ſhining, entirely opake, which eaſily crumbles, and in which are incorporated many ſhoerlaceous and feltſpathoſe ſcales. This enamel contains tumors marked with ſtripes and large threads, which appear every where in it, but always run in the ſame direction, which is that of the courſe of the lava, or from the mountain to the ſea. The ſubſtance of theſe ſtripes and threads is likewiſe enamel. Their preſence and direction ſufficiently indicate that the enamel when it flowed and entered the ſea was rather of a ſoft conſiſtence than fluid.

I at firſt imagined that, as the other contiguous lavas were each of one ſubſtance through the whole of their depth, it muſt be the ſame with this enamel, as far as it formed a diſtinct current, as we ſhall ſee in the enamels of Lipari; but, on breaking ſome of the larger pieces, I found that this was not the fact. The enamel is only the ſuperficial part, or cruſt, of a lava, many feet deep, which cruſt, where it is thineſt, is ſcarcely more than a line in depth, but where thickeſt frequently more than two inches. It cannot, however, in any manner be conſidered as a later product, or as having flowed after the lava and attached itſelf on it; this cruſt of enamel is certainly a true continuation of the lava itſelf, as I have, in my opinioin, ſatisfactorily aſcertained by repeated and careful examinations. The enamel, therefore, after having formed this cruſt of greater or leſs thickneſs, ſuddenly loſt its diſtinctive characters, and changed into a lava of a reddiſh grey colour, dry, rough to the touch, earthy, emitting an argillaceous odour, and having for its baſe the horn-ſtone, without loſing its ſcales of ſhoerls and feltſpars. we muſt hence conclude that the current was more affected by the fire on its ſurface than in its internal parts; for I know no other mode of explaining this phenomenon.

From this enamel and lava, when expoſed to the furnace, reſults a ſimilar enamel; that is to ſay, one of a dark grey colour, very hard and compact; with a fuſion of the ſhoerls, and a ſemi-fuſion of the feltſpars.

Another product with a horn-ſtone baſe, of a very ſingular quality, and which I do not remember to have ſeen any where elſe in my volcanic travels, is found on one of the ſides of Vulcanello that deſcend perpendicularly into the ſea, and, having been broken in different places by the violence of the waves, preſent upon the ſhore, and within the water, a large heap of fragments of a globular form. At the firſt view it might be taken for a tufa. It is rather light than heavy, may be crumbled to powder between the finger and thumb, imbibes water, with which it is in a few moments ſaturated, with a kind of hiſſing ſound, and emits an argillaceous odour. We know that ſimilar properties are uſually found in volcanic tufas: but theſe have an earthy grain, whereas the preſent ſubſtance rather inclines to the vitreous. Beſides, when the ſhoerls it contains, which are innumerable, are examined, they are found to be diſtributed equally as they uſually are in lavas—a diſtribution never met with in tufas, in which the ſhoerls that are ſometimes found in them are ſcattered confuſedly and at random. Hence as they are extraneous bodies, they are eaſily detached from the tufaceous maſs; but this is not the caſe with the product in queſtion, which, conſequently, we muſt conſider as a true lava.

But to what are we to attribute its ſoftneſs? Perhaps it has been conſiderably changed on the ſurface by ſulphureous-acid vapours, by length of time, or ſome other unknown cauſe. Such, at leaſt, was the firſt idea which preſented itſelf to my mind, but which I found inadequate, both becauſe in that place no ſulphureous fumes exhale, nor are there any indications that any ever have exhaled; and, becauſe, having procured this lava to be dug up from the depth of five feet, I found it, there, extremely ſoft as well as at the ſurface. I am rather of opinion that this lava is the reſult of the combined effect of fire and water; as examples are not wanting, in volcanized countries, of ſimilar combinations. I mean that the lava, while flowing, was met and penetrated by a ſtream of water, that had guſhed from ſome aperture of the volcano, by which it was ſuddenly cooled, and loſt that coherence which is uſually the property of lavas. I found this opinion on ſeveral obſervations. I perceive that the lava has a number of cracks and fiſſures, ſuch as are uſual in ſtony ſubſtances which, while in a ſtate of fuſion, have come into contact with water. I obſerve that the ſhoerls, which in other lavas have the hardneſs of glaſs, are in this ſo friable that they may be ſcratched with the nail; and as ſuch appearances are not uſually the effects of volcanic fire alone, I know not to what to aſcribe them but to the action of water; ſince vitreous ſubſtances in a ſtate of fuſion are affected in preciſely the ſame manner by contact with that fluid.

The ebullient though hard enamel, which is the reſult of this lava in the furnace, is of a fine deep black; the ſhoerls are melted; and it is worthy remark that in it we diſcover ſome ſmall flakes of white feltſpar which before were not diſcernable in the lava on account of its cinereous colour.

The two lavas I have deſcribed, as likewiſe others of which I have omitted the deſcription on account of their being common, and which together form the two ſides of Vulcanello, appear by their direction all to have proceeded from the crater, which is about two hundred paces diſtant from the ſea; and which ſtill retains its natural figure of an inverted tunnel, except that the bottom is covered to ſome height by earth which has been carried down by the rains from the internal ſides. Theſe ſides are formed of pulverized clay and ſand, and are marked with deep furrows cauſed by the deſcent of the

rain water. The circumference of the bottom of the crater, judging by the eye, cannot at the utmoſt be more than ſeventy, but that of the top is about the ſixth of a mile. Its depth is ſcarcely eighty feet. The crater on the outſide is ſurrounded with rocks of lava, probably the conſequences of an eruption. It is evident that, as more earth is continually falling into it, it muſt at laſt be filled up; and as the external ſides of it are ill-formed, there is no doubt but that one day every trace of it muſt be loſt. We hence perceive how many volcanized countries may appear, and in fact do appear, to be deſtitute of craters; theſe not having been able to reſiſt the injuries of time.

Here was it that I began to perceive the indications of the ſubterranean burning furnace; for round the crater of Vulcanello many ſtreams of a white ſmoke ariſe; and it is only neceſſary to ſtrike the ground with the foot to produce more. They are very hot, as are likewiſe the apertures through which they iſſue, and which, in the night, from time to time, emit a feeble flame. The ground, which fumes at the ſurface, within, contains cruſts of ſulphur, which are moſt abundant in the places where the fumes exhale moſt copiouſly. But we ſhall ſoon have occaſion to treat more at length of the ſulphur of this iſland.

From Vulcanello I proceeded to a grotto which has obtained ſome celebrity on account of a mineral water it contains, and is at the diſtance of about a mile from the weſtern haven. To reach this water it is neceſſary to deſcend into the grotto, the entrance of which is ſo narrow, that you are forced to ſtoop very much, and almoſt creep on the hands and knees. It is a moderately large cavern, incruſted round with ſulphate of alumine (alum), muriate of ammoniac (ſal-ammoniac), and ſulphur. Theſe minerals are found to be very warm, as likewiſe is the atmoſpheric air in this place, on account of the heat of which, the ſtrong ſulphureous ſmell, and the difficulty of reſpiration, it is impoſſible to remain long in the grotto, which you are obliged to leave from time to time to breathe freſh air. At the bottom is a ſmall pool of very warm water, which is eſteemed by the Lipareſe to be efficacious in many diſorders. The Abbate Gaetano Trovatini, a learned phyſician of Lipari, has publiſhed an analyſis of this water *. I ſhall not therefore enter into a minute account of it, which would be ſuperfluous, but ſhall only remark that, beſides the ſulphureous odour it emits, it contains abundantly the muriate of ammoniac (ſal-ammoniac), and ſtill more of the muriate of ſoda (ſea-ſalt); which latter ſalt I imagine it derives from a communication with a neighbouring ſea, with which it appeared to me on a level. Though its temperature is not higher than 80 degrees, it continually appears to boil, from the great number of air-bubbles that riſe from the bottom to the ſurface, which they entirely cover. This water, in fact, ſo much abounds with this aëriform fluid (which I found to be carbonic acid gas), that when ſhaken in the ſlighteſt manner a prodigious quantity of bubbles ariſe. I likewiſe obſerved, relative to the ſame object, that if a ſtone be let fall into this water, as it ſinks, a vaſt quantity of theſe bubbles will aſcend, and will continue to ruſh to the ſurface ſeveral minutes after it has reached the bottom. The continual emiſſion of ſo much carbonic acid, which doubtleſs concurs to render the air in the cavern unfit for reſpiration, produces within the grotto a confuſed noiſe, which may be heard likewiſe without.

M. Dolomieu, in his account of this ſubterraneous place, obſerves that a conſiderable quantity of ſmoke iſſued from it. This, when I was there, I could not perceive; either becauſe it had opened to itſelf another paſſage, or that the cauſe by which it was produced has ceaſed: changes not unfrequent in volcanic countries.

* Diſſertazione chimico-fiſica ſull' analiſi dell' acqua minerale dell' Iſola di Vulcano. Napoli 1786.

To this place the aſcent of the iſland is gradual; but the remainder of the way which leads to the higheſt crater of Vulcano is extremely rugged and difficult; as it lies over a long mile of continued heaps of lavas, vitrifications, and pumices. The fatigue, however, is alleviated by the pleaſure which the inſtructive examination of theſe productions affords. Some of the vitrifications found among the lavas clearly manifeſt, that they were originally pumices, which, by a more intenſe heat, have paſſed into the nature of complete glaſs. The breaking of ſome of them proves this beyond the poſſibility of a doubt. We then find one part a common pumice; I mean reſembling threads of ſilk, light, extremely friable, floating on water, and of a very white colour. Another part we find to be vitreous, of a different texture, leſs filamentous, leſs light, leſs white, and leſs friable. Still farther begin to appear long veins or threads of glaſs, which continually increaſe in thickneſs; and at laſt in another part of the piece, multiply and conſolidate into a maſs completely glaſs. This glaſs is ſemi-tranſparent, of a colour between grey and black, and ſo hard as to give ſparks with ſteel.

It is worthy of remark that ſome of the black ſhoerls, and white feltſpars, incorporated in the pumice, are preſerved entire in this glaſs.

The furnace melts neither of theſe; though it completely fuſes the glaſs, which is changed into an extremely porous enamel.

Mixed with theſe curious combinations of glaſs and pumice are found true glaſſes, and true pumices, as alſo a variety of lavas, which having loſt in a conſiderable degree, the texture of their primitive rocks, have acquired a vitreous appearance. They are extremely compact, give ſparks with ſteel, are of a blackiſh or dark blue colour, and are not wanting in feltſpars and ſhoerls. Some of them will move the magnetic needle at the diſtance of three quarters of a line. One of them has become a volcanic breccia, as it contains within it fragments of other lavas which it enveloped while in a ſtate of fuſion. Theſe fragments are of a coarſe grain, and a ſpongy texture, and when minutely examined are found to derive their origin from the horn-ſtone, while that of the including lava is from the petroſilex. The ſame difference continues even in the furnace; the fragments becoming ſcoriaceous, and the lava a ſemitranſparent glaſs.

Theſe glaſſes, pumices, and lavas, do not form currents, but are found in large maſſes; and it is probable that they were thrown out of the mouth of the volcano in the ſame ſtate in which we now ſee them.

As we proceed up this difficult aſcent, we perceive, near the top of the truncated cone, five or ſix ſtreams of ſmoke, approaching which we find that each of them iſſues from an aperture incruſted round with ſmall cryſtals of ſulphur. If a ſtick be thruſt into them, and drawn out again ſoon after, it will appear black, and ſmoke. The earth is here extremely hot, every ſtone is decompoſed, and of a white colour; and if new apertures are made with a ſtaff (which may eaſily be done from the great ſoftneſs of the ground) new fumes will immediately iſſue ſimilar to the other; that is to ſay, white, very offenſive from their ſulphureous ſmell, and extremely hot.

Above theſe fumes there is a plain, of no great extent, which one is, at firſt, afraid to venture on, from the ſubterranean noiſe heard there, and from the ſhaking of the ground when ſtruck with the foot. Here we find other ſulphureous fumes, beſides ammoniacal vapours, which, attaching to the decompoſed lavas, generate thin cruſts of that ſalt.

On this plain it was, that, formerly, ſtood the furnaces in which the ſulphur of Vulcano was purified. But this uſeful labour has been long ſince abandoned, and even prohibited, from the ſuppoſition that the vapours ariſing from the purgation of the ſulphur were prejudicial to the plantations of vines in Lipari. A few years ago, indeed, it

was again reſumed, by the ſpecial permiſſion of His Sicilian Majeſty; but was ſoon again given up, not becauſe any fear was then entertained that the vines would be injured, which the more judicious of the natives of Lipari are now convinced is a vulgar error, ſince they ſuſtain no damage from the ſmoke of the crater of Vulcano itſelf, though that is beyond all compariſon more in quantity than that produced by the purification of the ſulphur: nor was it abandoned becauſe the quantity of ſulphur obtained was too little to repay the trouble and expence, as the vein is very rich and even inexhauſtible; for wherever the ground about the craters of Vulcano and Vulcanello is but ſlightly turned, fine clods of ſulphur are found; which are larger and more numerous the deeper the earth is dug into. My own obſervations have in this particular ſufficiently confirmed the teſtimony of the people of Lipari: as I was convinced, in my different viſits to the iſland, that in the very places from which the ſulphur had been extracted, after a ſhort time it is re-produced.

The real cauſe why the inhabitants of Lipari no longer continued this work was, that the ground, which on the ſurface is more or leſs warm, grows hotter the deeper it is dug into, and, at the depth of five or ſix feet becomes ſo hot as to be almoſt inſupportable; to which is to be added the offenſive ſtench of the ſulphureous fumes that iſſue in great abundance from theſe excavations. If this mineral was once extracted here to great advantage, as we are aſſured by hiſtory, it ſeems certain that theſe difficulties could not then exiſt.

Continuing my journey towards the ſouth from theſe forſaken furnaces, and having mounted a ſhort but ſteep aſcent, a ſecond, but a much more ſpacious plain opened before me, which was every where ſandy, except that a few erratic lavas were thinly ſcattered over it. Beyond it roſe a conſiderable eminence, which when I had aſcended, the nobleſt ſpectacle Vulcano can offer preſented itſelf to my view, I mean its crater. Except that of Etna, I know none more capacious and majeſtic. It exceeds a mile in circuit, the mouth is oval, and its greateſt diameter is from the ſouth-eaſt to the weſt. This mountain externally has the form of a direct cone, and its crater that of a cone inverted. The height of the internal ſides from the bottom to the top is more than a quarter of a mile. From the top, the bottom may be ſeen, which is flat, and from many places in it exhale ſtreams of ſmoke, that riſe above the crater and emit a ſulphureous odour which may be perceived at a conſiderable diſtance.

After having made the circuit of the upper circumference of the crater, I became deſirous to enter it, and deſcend to the bottom, to examine the internal parts; the ſouthern ſide, which is not very ſteep, appearing to invite to ſuch an examination. I was not willing however to undertake ſuch an adventure alone, but wiſhed for ſome one to accompany me, who might ſerve me as a guide, and, I may likewiſe add, who might keep up my courage. But my wiſhes were vain. The four ſailors who had worked the boat which brought me to the iſland, and had gone with me to the edges of the crater, when they found I entertained thoughts of going down into it, poſitively refuſed to follow me, alleging the evident danger to which I ſhould be expoſed, and adducing the example of I know not what traveller, who a few years ago, having deſcended into this deep gulph, paid for his temerity by never coming out again. All my entreaties, therefore, and all offers of reward were fruitleſs; and I was obliged to return to Lipari without having been able to gratify my wiſh. Theſe ſailors were natives of Lipari, nor could I find any of their countrymen who would hazard accompanying me in making this experiment. So great is the dread they are inſpired with by this volcano, proceeding probably from the fame of its ancient terrors, and alſo from ſome recent eruption, of which we ſhall hereafter have occaſion to ſpeak.

A reſolute

A reſolute Calabrian, who had been baniſhed to Lipari for ſome crime committed at Naples, was the only one who, with the permiſſion of the Marcheſe Chiavelli, the governor of that city, and the promiſe of a large reward, could be induced to go down with me into the crater. We deſcended on the 13th of September 1788. I have already ſaid that the ſides towards the ſouth-eaſt are not very ſteep, and on this ſide we therefore ſafely reached the bottom, where I proceeded to make ſuch obſervations as I thought of moſt importance. I here perceived, more diſtinctly than I could above, that the crater was a hollow cone reverſed, but truncated by the bottom on which I ſtood. The ſides, except in that part where we deſcended, are every where inacceſſible. As they are covered with ſand, they are marked with deep furrows which are the effect of rains.

The bottom on which we ſtood, may be about ſomewhat more than a third of a mile in circumference. It is covered with ſand, like the ſides, and in form an oval. I ſoon perceived that it could not be walked over without danger, and that it was neceſſary to uſe the greateſt circumſpection in examining it. I have already mentioned the ſubterranean noiſe heard on approaching the crater of Vulcano. Here it may be ſaid to be a hundred times louder. Under this bottom we ſeem to hear a river running, or rather a conflict of agitated waves which meet, and impetuouſly claſh together. The ground, likewiſe, in ſome places cleaves in cracks, fiſſures, and apertures, from which hiſſing ſounds iſſue reſembling thoſe produced by the bellows of a furnace. I therefore thought there was every reaſon to conclude, that theſe ſounds are occaſioned by an elaſtic gas which iſſues through thoſe fiſſures; and was afterwards perfectly convinced of the truth of this ſuppoſition by the following facts; if the hand be approached to any of theſe clefts or apertures, a ſtrong impreſſion is felt of an extremely ſubtle inviſible fluid; and if a lighted candle be applied to them it will, it is true, be frequently extinguiſhed by the impetus of the fluid, but ſometimes it will ſet fire to the fluid itſelf, producing a flame of a blueiſh red colour which laſts for ſeveral minutes. The fetid odour which is then perceived convinced me that it is a ſulphurated hydrogenous gas.

The ground at the bottom was ſo hot that it burned my feet; and I ſhould not long have been able to endure its heat, had I not from time to time got on ſome large pieces of lava which were not ſo hot. From the extreme heat, and the ſtrong ſtench of ſulphur emitted by every part of the bottom, ſo as to render reſpiration ſomewhat difficult, I could ſcarcely go round it, and it was quite impoſſible to croſs it near the middle; at leaſt it would have been very dangerous to have attempted it. About the middle of this bottom aroſe a circular eminence of about forty-five feet in diameter, from every part of which a denſe vapour ſublimes, and the ſurface is covered with cruſts of ſulphate of iron (vitriol of iron), ſulphate of alumine (alum), muriate of ammoniac (ſal-ammoniac), and ſulphur; as I found by collecting and examining ſome fragments of theſe cruſts at the edges of the eminence. Its heat is inſufferable, and on preſſing the edge with my feet I perceived it ſhake very ſenſibly, as if I had trod on a floor of boards which yielded and ſprung up again under me. On letting fall a large piece of lava from the height of my body, a ſubterraneous echoing ſound was heard, which continued ſome ſeconds; and this happened on whatever part of the bottom the piece of lava was let fall, but the ſound was loudeſt near the eminence in the middle. Theſe circumſtances ſufficiently proved that, while on this bottom, I walked over a gulph from which I was only ſeparated by a flooring of volcanic matters of inconſiderable thickneſs, and that in this gulph the fires of the volcano ſtill continued active, of which the ſubterraneous noiſe, the fumes, vapours, and extreme heat were evident indications.

Another

Another proof, in confirmation of this, is furniſhed by an obſervation I made at other times by night, for I was not contented with a ſingle viſit. This is, that, when it was dark, ſeveral blueiſh flames might be ſeen to riſe from the bottom, to the height of half a foot, a foot, and ſometimes higher. It is to be remarked, that thoſe which aſcended from the eminence before mentioned were more numerous and roſe higher; and that beſides thoſe which iſſued ſpontaneouſly, it was in my power to produce new ones, by making ſmall excavations in the ground. The ſtrong diſguſting ſulphureous odour which all theſe flames emitted convinced me, that they were the effect of the ſulphur itſelf, which ſtill continued ſlowly to burn below, in a ſtate of fuſion.

But the object moſt curious and moſt intereſting to a naturaliſt is a grotto, on the weſt ſide of this bottom, which, from the variety of things it contains, merits to be deſcribed at ſome length. It is an excavation in the ſides of the crater a hundred and ten feet in height, two hundred and fifty in breadth, and ends at the bottom in a pit thirty feet in circumference. From this pit continually ariſes a column of whitiſh ſmoke, which alone equals in quantity, or perhaps exceeds, all the fumes that ariſe from the bottom of the crater. Its ſtrong and ſuffocating ſulphureous ſtench, and its extreme heat prevent any near approach. A part of this ſmoke, meeting with no obſtacle, aſcends in a direct line, and riſes above the mouth of the crater; but another part of it, ſoon after it has iſſued from the bottom, is obſtructed by ſome ſtones which jut out from the ſides of the grotto; and attaching to the lower ſurface of theſe, the ſulphur which had been ſublimed with the ſmoke falls down again, and collecting in ſeveral places, forms ſtalactites of ſulphur; ſome in the ſhape of inverted cones, and others cylindrical. The largeſt are three feet in length and two inches thick. On ſtriking ſeveral of them with a ſtick, I found that this ſulphur is extremely pure. Sometimes it is of a fleſh colour, but more frequently of a fine yellow, brilliant on the ſurface, and ſemi-tranſparent where the ſtalactites are thinner; which properties alſo give value to the other ſulphur that is dug round the crater of Vulcano, and exiſts likewiſe at its bottom; as I obſerved that in the fiſſures from which the ſulphureous fumes iſſue, it is found conſolidated in fragments of various ſizes. The ſtalactical alone, however, has the cylindrical or conical form, which is produced by the fuſion of its parts, and their deſcent by gravity; whereas that which is generated under ground is uſually found in amorphous maſſes, and ſometimes in ſtrangely irregular configurations.

It ſeems ſcarcely neceſſary that I ſhould mention the manner in which ſulphur muſt be continually formed in this iſland; ſince it is well known that this mineral is not entirely conſumed in conflagration, but that a great part of it is ſublimed, unchanged in its ſubſtance, which again depoſits itſelf, ſometimes cryſtallized, and ſometimes amorphous, on any bodies with which it may meet. As it is therefore perpetually burning in the ſubterraneous furnace of Vulcano, it continually produces thoſe numerous white fumes which ariſe from various places, and thoſe lumps, cylinders and cones of ſulphur which I have before mentioned. The ſulphur which is ſo frequently found in other burning mountains is generated in the ſame manner.

From the pit within the cavern, whence the cloud of ſmoke continually iſſued, a louder noiſe was heard, than at any other part of the bottom; and on throwing ſtones into it I could not perceive that they ſtruck againſt any obſtacle, as they gave no ſound, but a kind of hiſſing one occaſioned by the reſiſtence of the air in their fall. It appears probable, that this cavern has an immediate communication with the ſubjacent furnace of the volcano.

From

From one of the ſides of the cavern, at the height of eight feet from the bottom on which I ſtood, iſſues a ſmall ſpring of mineral water, which leaves on the different lavas depoſitions which well merit to be examined. If we ſuppoſe this water to proceed from the ſea, it can only be by evaporation, as the level of the ſea is very much lower then the place whence it iſſues. It may poſſibly derive its origin from rains, which penetrating to the interior parts of the mountain, and accumulating in ſome cavity, have found a free outlet, depoſiting in different places the heterogeneous ſubſtances with which they became impregnated in their paſſage.

Where this water flows, we find, in the firſt place, hanging ſtalactites of ſulphate of alumine, ſome of which are of the thickneſs of ten inches, and a foot and a half in length. On breaking them, they are found to be a congeries, of barks or rinds, ſimilar to the coats of onions, as ſtalactites in fact uſually are.

Secondly, theſe ſtalactites are, not always compoſed entirely of ſulphate of alumine, but are mixed with muriate of ammoniac.

Thirdly, the ſulphate of alumine, in ſome places, inſtead of being ſtalactical, is cryſtallized in beautiful ſtellated groups conſiſting of very fine ſilver ſilky threads.

Fourthly, between the ſtones where this water iſſues, we frequently find ſtalactites of ſulphate of iron.

Laſtly, on the ground where this water falls, we find a number of hollows filled with a kind of thick pulpy matter, which is no other than a confuſed mixture of all theſe ſalts, which, from the partial evaporation of the water, begin to aſſume a body and conſiſtence.

The ſides of the crater of Vulcano, and the oval plain which forms its bottom, are covered with ſand, as has been already obſerved. This ſand, however, cannot properly be ſo called, ſince it is a mixture of fragments and ſmall particles of pumices, lavas and glaſs; among which are found, principally where the ſulphureous fumes are ſtrongeſt, entire and large pieecs of vitrifications, pumices, and lavas, which well deſerve the careful and accurate examination of the obſerving naturaliſt.

We will begin with the former of theſe ſubſtances. At the bottom of the crater of Vulcano we find a glaſs which is of a lead colour, and not unlike another kind found in aſcending the cone of Vulcano. Many pieces which lie without the fumes are preſerved unchanged; but many of thoſe within them exhibit different degrees of alteration. The firſt and ſlighteſt degree is a thin cinereous coating, which inveſts the glaſs, and is leſs hard than the internal part. The ſulphureous acids, therefore, have only acted on the ſurface of theſe pieces. In others they have penetrated deeper, as appears by the greater thickneſs of this tender and half pulverous coating. Some are ſo changed, that nothing remains of the glaſs but a ſmall central nucleus; while others have entirely loſt even this nucleus, and the whole piece, from being of a lead-colour, hard, ſemi-tranſparent, and ſmooth, is become of an aſh-colour, ſoft, opake, and yielding to the touch. In theſe, therefore, the glaſs has undergone a complete decompoſition.

It had been diſcovered, long before I wrote on the ſubject of volcanos, that ſulphureous acids would decompoſe lavas; but I believe I am the firſt who has obſerved a ſimilar decompoſition in volcanic glaſs.

In the ſame place we find pieces of various ſizes, of a more perfect, harder, and extremely black glaſs; which, likewiſe, where the ſulphureous acids abound, has undergone the ſame changes.

A number of particles of ſulphur are frequently attached to the ſurface of both theſe glaſſes, and ſome are alſo found within their ſubſtance, where ſmall fiſſures have opened to them an entrance.

We

We will now ſay a word of the pumices. They do not differ from thoſe we meet with on the declivity which leads to the ſummit of the mountain, and which we obſerved with an intenſe heat, changed into glaſs. Yet theſe likewiſe ſuffered more or leſs alteration from the above-mentioned acids. In ſome their fibrous texture was reduced to a kind of pulverulent earth, which ſcarcely retained a ſingle original filament. In others this texture was preſerved, yet they might be eaſily reduced to powder by the finger.

It now remains to treat briefly of certain priſmatic or baſaltiform lavas likewiſe found in this volcanic bottom. In the firſt place, where the ſulphureous acids are ſtrongeſt, we find ſcattered pieces, ſuperficially decompoſed, which ſeem to have been broken off from larger columns. They have a pentagonal priſmatic figure, with unequal ſides and angles; and the larger pieces are about nine inches in length by eight in thickneſs. Their baſe is a petroſilex, which, from its having ſuffered fuſion, is of a very ſingular kind.

In the courſe of this work I have frequently had occaſion to ſpeak of lavas with a petroſiliceous baſe, and ſhall certainly have occaſion to ſpeak of them again. They are all too ſtrongly characterized for their baſe to be confounded with other ſtones. They, however, carry in them the marks of fire, in a certain fibrous appearance which they have, and which originates from a diminution of the affinity of aggregation when in a ſtate of fluidity. The petroſilex of which I now ſpeak, on the contrary, exhibits no ſigns of injury from the fire, though it is certain that it has ſuffered fuſion. It is of that kind which is ſomewhat ſcaly; has a grain and hardneſs little different from that of ſilex; is tranſparent at the edges, of a ſhelly fracture, and of a livid aſh-colour. When pulverized it becomes white. The pieces, when ſtruck together, ſound like flint. This ſtone contains a few irregular ſhoerls, of a black colour, and but little luſtre.

After a continuance of forty-eight hours in a furnace of ſufficient heat to liquefy the fine cryſtal glaſs, this priſmatic lava with difficulty melts. To obtain a complete fuſion, it is neceſſary to have recourſe to a ſtronger heat; with which view I uſed a wind-furnace. After thirteen minutes, its volume increaſed almoſt threefold, from the diminiſhed force of aggregation, and then the lava acquired a ſnowy whiteneſs. Continuing the ſame fire, its dimenſions contracted, and it at length produced a white enamel, moderately hard, and interſperſed with microſcopic bubbles.

The firſt time I ventured to explore the bottom of the crater of Vulcano, I only found ſome fragments of this priſmatic lava: but when I repeated my viſits, and had diveſted myſelf of the fear I at firſt felt, and more carefully examined this dreary bottom, I was enabled to complete my diſcovery by aſcertaining the origin of theſe priſmatic, or, as ſome my chooſe to call them, theſe baſaltiform lavas. For, raiſing my eyes to that part of the ſides of the crater which was over my head, and facing the north-eaſt, I perceived a large ſtratum of lava, almoſt perpendicular, divided lengthwiſe into complete priſms, ſome of which were continued with the lava and made one body with it; while others were in a great meaſure detached from it, ſo that, ſtriking them with a long and heavy pole, I beat three of them down. I then clearly perceived that the pieces I mentioned above were fragments of entire priſms, ſince the external characters of both were preciſely the ſame.

Each of theſe priſms, exceeded a foot in length; but, as far as could be judged by the eye, other priſms adhering to the maſs, which I could not reach, were of much larger dimenſions. The lava which contained them ſtretched to the ground, but did not appear of great extent, as its upper parts and ſides were covered with a thick ſand.

The

The production of theſe baſaltiform lavas, which, from their ſituation, and their forming a whole with the lava, no one can doubt derive their origin from fire, may, I conceive, be thus explained. In former times an effervescence took place in the melted lava in the crater, which, after having ſwelled, and perhaps overflowed its edges, ſlowly ſunk into the cavity of the crater, from the diminution of the fire, and the impellent elaſtic ſubſtances, while a portion of the lava attaching itſelf to the internal ſides, and haſtily cooled by the atmoſpheric air, contracted, and divided into regular parts, ſuch as are the forms of the hexagon priſms above mentioned. Their perfect preſervation and freſhneſs are a clear proof that they are not of very ancient date.

I ſhall conclude this chapter with a few obſervations relative to the decompoſitions which I remarked in various productions both within and around the crater of Vulcano. Theſe decompoſitions, I have ſaid, were produced by ſulphureous acid exhalations. I have aſſerted the ſame of ſome decompoſed lavas in the vicinity of the volcano of Stromboli, as alſo of a great number of thoſe of which Solfatara is principally formed *. And in general, when the queſtion is of lavas, the alteration of which conſiſts in being ſoftened and rendered mild and ſaponaceus like argilla, and in a whitening of the parts, I perceive that the greater number of volcaniſts agree with me in ſentiment. I find, however, that M. Sage is, of a different opinion, maintaining that ſuch decompoſitions are generally to be aſcribed to the action of muriatic acid, which is the cauſe of the greater part of the alterations that take place in the products of volcanic eruptions. He attempts to demonſtrate this by the experiment of a black lava which, in his laboratory, became white and equally decompoſed with thoſe found in ſome volcanos, by keeping it in digeſtion in concentrated muriatic acid. Other ſimilar experiments likewiſe confirm him in this opinion †.

That the muriatic acid is capable of producing decompoſitions in various volcanic productions analogous to thoſe we frequently obſerve in the materials of burning mountains, I am the more eaſily perſuaded, ſince, having repeated the experiment of the French chemiſt, I have found it accurate. I placed in two veſſels, filled with concentrated muriatic acid, ſome fragments of two different lavas, the one from Etna, the other from Veſuvius, both of a colour approaching black, of the horn-ſtone baſe, and containing a number of black ſhoerls. Having cloſely ſtopped the veſſels, I left them for a month; at the end of which time the lavas were become of a yellowiſh cinerous colour, and, having waſhed away the muriatic acid with which they were impregnated with diſtilled water, they loſt the yellowiſh tincture, and became entirely of the cinerous colour. Some of them had likewiſe become in ſome degree friable, though before they were hard. The decompoſition had in fact penetrated more or leſs to their internal parts, though the ſhoerls remained unaltered both in texture and colour.

This author however admits, in another place, that the ſulphuric acid is likewiſe capable of producing the ſame effect, which I alſo experimentally aſcertained on the two lavas above mentioned ‡. It is in like manner known that the ſulphuric acid poſſeſſes an

* See Chap II. and Chap. XI. † Elemens de Mineralogie.

‡ Notwithſtanding that, at the end of a month, the muriatic and ſulphuric acids had been equally efficacious in producing alteration in the two lavas, yet, after a longer time, the muriatic appeared to be more powerful than the ſulphuric. At the end of ſeven months and a half, on examining the lavas which had remained in the ſame ſituation in the two acids, I found that the muriatic acid had decompoſed them more than the ſulphuric. Beſides that they had acquired a whiteneſs almoſt equal to that of ſnow, they had become very light, and extremly friable and ſpungy, from the corroſion of the acids. The ſhoerls remained black, but had loſt their vitreous appearance. Both theſe lavas, likewiſe, contained a number of feltſpars, which ſuffered leſs than the ſhoerls, as they always retained their natural changing luſtre. But the ſulpuric acid only produced

an equal ſtrength when the ſulphur is cauſed to burn very ſlowly. It remains therefore to determine which of theſe two acids, the muriatic or the ſulphuric, is the real cauſe of the decompoſition and whitening which is frequently obſerved in products of volcanos, at leaſt of thoſe which I have moſt attentively examined, Stromboli and Vulcano. And though I ſhall, in another part of the preſent work, produce direct proofs, that ſome lavas, enamels, and volcanic glaſſes, ſometimes give reception to the muriatic acid, yet certainly the decompoſitions in queſtion are not to be attributed to this acid, but to the ſulphureous. The odour of theſe acids is too different for them to be confounded; and both at Stromboli and Vulcano in the places where theſe decompoſed products are found, enveloped in white fumes, I very ſenſibly perceived the aerid, pungent, and ſuffocating fetor of the ſulphur, as alſo the ſharp taſte, if a particle of the fumes by accident entered my mouth. I likewiſe particularly remarked at Vulcano, that where the ſulphureous fumes were moſt denſe, and left cruſts of ſulphur attached to the bodies they touched, theſe bodies, whether lavas, pumices, or glaſſes, ſuffered greater alteration than others; and in ſome of them, the decompoſition had penetrated to the depth of two feet.

An experiment which I ſhall now relate offers a new and indiſputable proof of what I have here aſſerted. At Vulcano, I left a piece of extremely black lava, which had for its baſe ſhoerl in the maſs, and was one of the firmeſt and hardeſt I could find, in an aperture from which iſſued a great quantity of very hot fumes; and after it had continued there two-and-thirty days, I obſerved that, in its upper part, it remained untouched; its black colour only having become ſomewhat lighter; but on the ſides, and ſtill more on the lower part, where the impreſſion made by the ſulphureous fumes had been greater and more active, it was become white, with a ſenſible ſoftening of the ſolid parts near the ſurface.

Had M. Sage, inſtead of deciding, while ſhut up in his laboratory, that the muriatic acid is the cauſe of the alterations which take place in volcanic countries, himſelf viſited thoſe countries, he would have thought differently; and had he in the courſe of ſuch a journey entered the Grotta del Cane near Pozzuolo, the expreſſion would never have eſcaped him, that this perpetual mephitis is produced by the volatile marine acid *.

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produced in theſe lavas a cinerous colour, a leſs degree of friability and lightneſs than was cauſed by the other acid; and the black ſhoerls did not loſe any of their glaſſy brilliancy. This acid was concentrated equally with the muriatic. Inſtead of the colour and limpidneſs of water, it was become turbid and dark. The muriatic had acquired a beautiful golden yellow. I muſt add, that, having poured ſome freſh ſulphuric acid on the old, the decompoſition and whitening of the lavas, after ſome time, was not inferior to that produced by the muriatic acid. I found a remarkable difference between the alteration obſervable in lavas in the vicinty of volcanos, and that which is effected by the ſulphuric and muriatic acids, ſince the volcanic alterations are ſometimes accompanied by an unctuous ſmoothneſs, I never obſerved in the two lavas expoſed to the action of the above-mentioned acids, which, on the contrary, had become rough and ſcabrous.

* See Chap. III.

CHAP.

CHAP. XIV. — VULCANO, CONTINUED.

Among the few naturaliſts who have made a voyage to the Eolian iſles, M. de Luc the only one who has entered the crater of Vulcano.— Summary of the obſervations made by him there, in 1757, compared with thoſe of the Author.—Similarities and differences between the local circumſtances of the crater at that time and thoſe of the preſent crater.—Obſervations made by the Commendator Dolomieu from the ſummit of the crater in 1781.—Remarkable changes which have, ſince that time, taken place in the crater.—Commotion of Vulcano in 1786.—No eruption of lava from the crater has happened within the memory of any of the natives of Lipari now living.—The phænomena of this volcano habitually obſerved by them.—Viſits made to this crater by Farther Bartoli, in 1646, and profeſſor d'Orville in 1727.—Interior conflagration through the whole of the crater at the firſt period. Not one but two craters at the ſecond.— Hill which at that time roſe from the bottom of one of the two craters.—Vulcano then in its greateſt agitation.— Some obſcure memory ſtill retained by ſome aged natives of Lipari of a double crater at the ſummit of Vulcano.—Sterility of this iſland on the ſide next Lipari, though there is no want of vegetation on the oppoſite ſide.—Porphyritic lavas in this part of the iſland, but greatly decompoſed.—Small crater on the ſide of Vulcano deſcribed for the firſt time.—The fumes of Vulcano obſerved by ſome of the Liparese as ſigns of good or bad weather, in the ſame manner as the inhabitants of Stromboli conſult their burning mountain —Obſervations publiſhed by a native of Lipari, on the diverſity of the fumes, and internal commotions of Vulcano, betokening, according to him, what winds will blow.—Obſervations of the Author not agreeable to thoſe of the Liparese.—The fires of Vulcano more powerful at that time than now, if the accounts given by that writer may be relied on.—Ancient accounts of the conflagrations of Vulcano. – Number and ſize of its craters. – Its different eructations.—This burning mountain, in a certain degree, comparable to Veſuvius and Etna.—Prognoſtics of the winds which may be expected to blow from the ſymptoms of the volcano very ancient; and perhaps deſerve equal credit with the modern.

AMONG the very few naturaliſts who have made a voyage to the iſland of Lipari, M. W. de Luc is the only one, to my knowledge, who has entered the crater of Vulcano. This he did on the 30th of March, 1757, as appears from an account of the obſervations he made there, publiſhed in the ſecond volume of the travels of M. de Luc, a ſummary of which account I ſhall here preſent to the reader, as we ſhall thus be enabled to compare the local circumſtances which exiſted at that time, with thoſe obſerved by me in one of the moſt ſuperb and ſpacious gulphs at this day to be found among burning mountains.

He relates that he reached the bottom of the crater, by a narrow paſſage, which afforded him entrance, but with great riſk of being ſuffocated by the denſe ſulphureous fumes that enveloped him; in conſequence of which danger he was obliged to enter alone, the guide who had conducted him to the ſummit of the crater, and who was a native of Lipari, having refuſed to follow him. He found the bottom very rugged and uneven, of an oval form, with ſeveral apertures, from which iſſued ſulphureous vapours, and from ſome a ſtrong wind. The ſound of his feet as he walked on it was very ſenſible.

The longeſt diameter of the oval appeared to him to be about eight or nine hundred paces, and the ſhorter between five and ſix hundred. The height of the ſides of the

crater he imagined might be about one hundred and fifty, or, towards the eaſt and the ſouth, two hundred feet. At the bottom they were nearly perpendicular, and were compoſed entirely of volcanic materials.

A column of ſmoke, of fifteen or eighteen feet in diameter, iſſued from a cavern which above loſt itſelf in one of the higheſt ſides of the crater, and below ended in a kind of tunnel, or rather abyſs, of about ſixty paces in circuit; and the fumes on iſſuing out of that abyſs roared like the vapour of boiling water, when it eſcapes from a veſſel not cloſely covered. Several pieces of ſcoriæ being thrown into it were no longer heard when they had paſſed beyond the tunnel.

Another object likewiſe ſtrongly attracted the attention of M. de Luc: this was an aperture, five or ſix inches in diameter, which terminated in a ſmall tunnel about two feet and a half deep, from which the air ruſhed with as much violence as from the bellows of a forge. He threw into it great pieces of lava, which enlarging the opening, cauſed the wind to iſſue with leſs force, but the ſmall pieces that were detached from the aperture were driven outwards by it. The fragments of lava which fell within, produced the ſame effect as the ſcoriæ thrown into the tunnel of the cavern. As theſe obſervations convinced him of the extreme thinneſs of the floor or ſhell on which he ſtood, he thought it adviſable to quit this perilous gulph, and direct his reſearches to object leſs dangerous.

He then remarked that the ſulphureous vapours of the volcano had here a communication with the ſea, which was in many places of a yellow colour, and in others emitted fumes; and that in the places where the fumes roſe its heat was intolerable; ſo that the fiſh that happened to approach that ſhore ſoon died, and the beach, where a few inches above the level of the ſea warm veins of water burſt out, was ſcattered over with dead fiſh.

Such is the ſubſtance of the obſervations of M. de Luc, made about thirty-one years before mine. On comparing the one with the other, it will appear, that if the internal parts of the crater of Vulcano have ſuffered ſome changes ſince that time, they are ſtill eſſentially the ſame. At preſent, (at leaſt, at the time when I was there, I might have ſaid at preſent,) the ſides of the crater are in moſt parts nearly perpendicular, the circumference of the bottom is an oval, from a number of fiſſures and apertures ſulphureous fumes iſſue, and from others ſtreams of wind with a hiſſing ſound. The bottom likewiſe ſhews evidently that it is a dangerous and a falſe bottom, by ſhaking and ſounding when walked over. The cavern excavated in the ſides of the crater, and deſcribed by the above-cited traveller, alſo ſtill exiſts, and from it a cloud of ſulphureous fumes continues to exhale; and had not M. de Luc been fearful of proſecuting his reſearches, it is more than probable that he would have found it abounding with ſulphur and various ſalts, as it is at preſent.

The differences, therefore, between the ſtate of the crater at the time it was entered by M. de Luc and at preſent are reduced to theſe; firſt, that the narrow paſſage by which he reached the bottom now no longer exiſts; but that, on the other hand, the ſides on the ſouth-eaſt are become leſs ſteep, and afford a way to deſcend into that gulph: ſecondly, that the height of the crater is now much greater than it was then, as I found it to exceed a quarter of a mile, whereas when M. de Luc was there it was not more than two hundred feet: laſtly, that the furnace below the bottom burns much more violently at preſent, as may be inferred from the intenſe and almoſt intolerable heat I felt when I was there, which circumſtance, had it exiſted when M. de Luc made his obſervations, he certainly would not have failed to have mentioned.

I do not mean to ſay by this that the ſubterranean conflagration of the iſland is now more active or energetic; ſince it appears that the extreme heat, though not then felt within the crater, manifeſted itſelf without, and even in the ſea itſelf, which, as has been obſerved, ſmoked in ſeveral places near the ſhore, and was ſo hot that the fiſh all died; circumſtances which did not exiſt when I viſited the iſland.

M. Dolomieu, who was there ſeven years before me, could not go down into the crater, becauſe the narrow paſſage by which M. de Luc entered no longer exiſted, and the ſides were too ſteep to admit of any deſcent. The volcanic mouth, however, was then in the ſame ſituation, was large, of an oval form, and emitted, in a great number of places, ſulphureous acid and ſuffocating fumes.

Yet within this ſhort interval, very conſiderable changes have taken place. The depth of the crater, as far as my judgment could be formed by the eye, was then about a mile, the larger diameter of its mouth was half a mile, and that of its bottom about fifty paces. Whence it appears that the bottom, ſince that time, muſt have been greatly raiſed, and likewiſe have become narrower, while the mouth has been conſiderably enlarged. From the edge of the crater, he threw into it large ſtones, which, when they reached the bottom, he perceived ſank in ſome fluid, that could not be aqueous, ſince it muſt have been ſoon evaporated by the exceſſive heat, but which he judged to be melted ſulphur; as he in fact ſaw that ſubſtance trickle down the ſides againſt which it had ſublimed. With a good teleſcope he could diſcover at the bottom two ſmall pools, which he ſuppoſed to be full of the ſame combuſtible matter. He likewiſe obſerved that the ſulphureous fumes which in the day time appeared white, were by night reſplendent but placid flames that roſe above the mountain, and diffuſed their light to ſome diſtance.

When I made my obſervations at the bottom of the crater, though the ſulphur flowed in many parts of the cavern, as I have already ſaid, yet it did not ſtagnate in ſmall pools or pits at the bottom; nor did the ſulphureous flames ariſe by night more than ſome feet from the bottom.

The changes which have taken place in the internal parts of this volcano, ſince it was viſited by the French naturaliſt, have probably originated from ſome later eruption; ſince it is to that cauſe that changes of any moment in volcanic craters are uſually to be attributed. And in fact, according to the unanimous teſtimony of the inhabitants of Lipari, it ſuffered a very violent commotion in the month of March 1786. After ſubterraneous thunders and roarings, which were heard over all the iſlands, and which in Vulcano were accompanied with frequent concuſſions and violent ſhocks, the crater threw out a prodigious quantity of ſand mixed with immenſe volumes of ſmoke and fire. This eruption continued fifteen days; and ſo great was the quantity of ſand ejected, that the circumjacent places were entirely covered with it to a conſiderable height; and, at a ſmall diſtance from the crater, to the eaſt, there is ſtill an eminence, of a conical form, half a mile in circumference, conſiſting wholly of this pulveriſed ſubſtance, and, as I was aſſured, entirely produced at this time. The aperture that muſt then have been made in the bottom of the crater to diſcharge ſuch a quantity of matter, and the accumulations of that matter in various places, muſt neceſſarily have cauſed great changes around and within the crater; one of which, without doubt, is the declivity produced in the ſouthern ſides, in conſequence of which it is now poſſible to deſcend to the bottom of the gulph; for we find that this long deſcent is entirely compoſed of ſand.

No lava flowed in this eruption, at leaſt not over the edges of the crater. With reſpect to the lava of a vitreous nature which is found on the ſurface on the northern ſide of the mountain, and of which we have already ſpoken, M. Dolomieu obſerved that it exiſted

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when he was there, and he tells us that it was thrown out in large maſſes in an eruption in the year 1775: an aſſertion of the truth of which he ſhould have produced unqueſtionable documents; for, according to the accounts I received from the natives of Lipari, no eruption of lava has happened in the memory of any perſons now living in the iſland, nor do they ſeem to have any tradition of any. Clouds more or leſs frequent or thick, ſometimes black and ſometimes of a white colour, and emitting a ſtench of ſulphur; ſubterraneous thunders and concuſſions, which often ſhake the whole mountain; flames which riſe to a greater or leſs height from the bottom and ſides of the volcanic gulph; the poſſibility of entering this gulph at one time, and the impoſſibility of ſuch entrance at another; ejections at different times of ignited ſtones, pieces of vitreous ſubſtances, ſand, and aſhes; theſe are phenomena with which the people of Lipari have been long acquainted.

I muſt here add the obſervations of two other men of ſcience, relative to the crater of Vulcano, Father Bartoli and M. d'Orville. The former viſited the iſland in 1646, and relates that it contained a deep gulph, entirely in a ſtate of conflagration within, and in a ſmall degree to be compared to Etna; and that from its mouth a copious ſmoke continually exhaled *.

When M. d'Orville viſited Vulcano, in 1727, it had two diſtinct craters, each of which was at the ſummit of an eminence. From the firſt crater, which was ſituated to the ſouth, and which was about a mile and a half in circuit, beſides flame and ſmoke, ignited ſtones were ejected; and its roaring was not leſs than that of the loudeſt thunder. From the bottom of this gulph roſe a ſmall hill, about two hundred feet lower than the top of the crater, and from this hill, which was entirely covered with ſulphur and dirty corroded ſtones, fiery vapours exhaled in every part. M. d'Orville had, however, ſcarcely reached the edge of this burning furnace when he was obliged precipitately to retire.

The ſecond crater lay towards the north part of the iſland. Its conflagrations were more frequent and ardent; and its ejections of ſtones mixed with aſhes and an extremely black ſmoke were almoſt continual. M. d'Orville further relates that the noiſe of this volcanic iſland was heard many miles; and was ſo loud at Lipari that he could not ſleep the whole night that he remained there †.

If we conſider for a moment theſe two accounts, we ſhall perceive from the firſt, that when Father Bartoli viſited Vulcano, the conflagration in its crater was much more vigorous than when I was there; and from the ſecond, that in the time of d'Orville it was in a ſtate of complete eruption. But the moſt remarkable circumſtances are the double burning crater, and the biſurcation of the mountain of Vulcano; whereas at preſent there is but one crater, and the ſummit of the mountain is ſingle, which ſummit contains the crater, reſembling in figure a truncated cone. The hill which roſe to a certain height from the bottom of one of the two craters ſtill exiſts, though it is not peculiar to this volcanic mouth, ſince the ſame kind of hill has at times been obſerved in Etna ‡, and likewiſe in Veſuvius §.

When I was at Lipari, as I had read d'Orville's account, I made enquiries of ſome of the oldeſt people in the iſland relative to this double burning crater, and I found ſome few of them who retained an imperfect recollection of it. But from that time to this there has been only one crater, and I am not certain whether the preſent be that which the above-cited author deſcribes as on the ſouth ſide of the iſland, or that which he mentions as on the north.

* Simboli traſportati al Morale.
† Jacobi Philippi d'Orville Sicula.
‡ See Chap. VIII.
§ Bottis, Iſtoria di Veſuvio.

The ſide of the iſland which looks towards Lipari is entirely barren, and does not produce any kind of vegetable; but this is not the caſe with the other ſides that front the ſouth and the weſt, and which are partly covered with holms and oaks, beſides quantities of broom and other ſhrubs. It is obvious to ſuppoſe that thoſe parts of the iſland which afford ſo much nouriſhment for plants have been more ſubject to decompoſitions than that which remains barren. The ſubſtances of which they are compoſed are lavas become ſoft to a certain depth, and affording reception and nutriment to plants. This decompoſition is not to be attributed to ſulphureous acids; for it is not diſtinguiſhed by a white or any other colour; but originates from the humid elements, and other cauſes in the atmoſphere. I cauſed ſeveral of theſe lavas to be broken away with hammers and pickaxes, quite to the internal part, to which the cauſes producing change could not penetrate; and there I found them retain all their uſual ſolidity and freſhneſs. In general they are porphyritic, with a petroſiliceous baſe, and contain feltſpathoſe cryſtallizations. They deſcend from the ſummit of the mountain, on the ſouthern ſide, with a ſteep fall till they reach the ſea. Mixed with the lavas are found large pieces of glaſs and enamel, which I ſhall not here deſcribe, as they do not differ from thoſe of Lipari, of which I ſhall ſpeak in their place.

Such are the obſervations I made in four different viſits to this iſland, to which I ſhall add another relative to a ſmaller crater, different from that of Vulcanello, and which has not, to my knowledge, been noticed by any other traveller. It lies about half way up the mountain, to the eaſt of the way I took to reach the ſummit. Its form could not more diſtinctly characterize it as a real crater, ſince it is preciſely that of a tunnel, wide above and narrowing below. Its mouth is about three hundred feet in circuit, and its bottom about eighty. A full quarter of this bottom is filled up with earth carried by the rain down the ſides, which are in conſequence marked with long furrows. Hence it appears that in proceſs of time this crater will be entirely filled up with earth, like that of Vulcanello, and no trace of it remain.

In the ſame manner as many of the ſailors of Stromboli, before they put to ſea, are accuſtomed to conſult the fumes and eruptions of their burning mountain; the mariners of Lipari believe the changes of the winds and weather may be foretold by obſerving Vulcano. Inſtructed, they ſay, by long experience, they are able to predict, twenty-four hours before any change, whether the weather will be fair or tempeſtuous, and from what point the wind will blow. In a work entitled *Tracts by Sicilian Authors* *, printed at Palermo in 1761, there is a "phyſico-mathematical diſcourſe on the manner in which the variations of the winds may be foretold, twenty-four hours before they happen, by the different qualities and effects of the fumes of Vulcano, by Sig. Don Salvadore Paparcuri of Meſſina †." In this eſſay we find an extract from a number of obſervations made on Vulcano between the years 1730 and 1740, and communicated to the author by Don Ignazio Roſſi, a native of Lipari. This extract I ſhall here preſent to my readers.

"The change of weather and winds is preſignified by Mount Vulcano twenty-four hours before it takes place, by a louder than uſual noiſe, reſembling diſtant thunder; and if we carefully obſerve the ſmoke which then iſſues in a greater quantity than uſual, we may likewiſe diſcover what kind of wind will ſucceed, which may be predicted from the greater or leſs denſity of the ſmoke, and its more or leſs dark colour, which is occaſioned

* Opuſcoli di Autori Siciliani.

† Diſcorſo Fiſico-matematico ſopra la variazione de' venti pronoſticata ventiquattre ore prima dalle varie e diverſe qualità ed effetti de' fumi di Vulcano, del Sig. Don Salvadore Paparcuri, Meſſineſe.

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by the quality and quantity of the duſt that riſes in the ſmoke, and renders it ſometimes of an aſh-grey colour, ſometimes perfectly white, ſometimes of a colour approaching to black, and ſometimes entirely black.

"The following are the obſervations I have made on this ſubject. When the wind is about to change to the ſirocco or ſouth-eaſt, or the eaſt-ſouth-eaſt, or ſouth-ſouth-eaſt, the ſmoke riſes ſo denſe and black, in ſo great a quantity and to ſuch a height, and afterwards diſſipates in ſo black a duſt as to ſtrike the beholder with a kind of awe; and at the ſame time ſo loud a roaring is heard, frequently accompanied with a ſhaking of the earth, as to inſpire with dread even thoſe long accuſtomed to theſe roarings and ſhocks. But when the wind is on the point of changing to the north-north-eaſt or north-north-weſt, the ſmoke riſes more ſlowly, is leſs denſe, and entirely white; and when it is diſſipated, the duſt which falls is extremely white. No ſuch loud noiſe is then heard, nor any ſhock felt; at leaſt I obſerved none, nor can the oldeſt inhabitant of this iſland remember to have felt any. When it is about to change to the eaſt or eaſt-north-eaſt, an exploſion is heard in the body of the mountain, which ſoon after throws out a little ſmoke of a grey colour, of which colour are likewiſe the aſhes that fall when the cloud is diſperſed. The mountain in the mean time explodes and roars ſo violently at intervals, that we frequently dread the ſhock of an earthquake. Laſtly, previous to a change of the wind to the weſt, the weſt-ſouth-weſt, or weſt-north-weſt, vaſt volumes of ſmoke ariſe, of a dark aſh-grey, approaching the colour of lead, and ſo thick that when they diſperſe they occaſion a continued ſhower of aſhes."

On theſe obſervations of the Liparеſe meteorologiſt, Signor Paparcuri proceeds to philoſophize, whether pertinently or not I ſhall not enquire.

I ſhould think myſelf juſtly to incur the imputation of raſhneſs, ſhould I venture abſolutely to deny theſe facts, without having ſufficient reaſons ſo to do; eſpecially as they are ſo preciſe, ſo circumſtantial, and ſaid to have been obſerved upon the ſpot. It beſides does not appear credible that the Abbate Roſſi would have publiſhed theſe obſervations, had they been merely the fabrications of his invention, in a place where he was liable to be diſgraced by the contradiction of all his countrymen. I muſt however ſay, with philoſophic candour, that during my ſtay of ſeveral weeks at Lipari, where I continually had Vulcano before my eyes, the principal winds mentioned in this extract blew, and particularly the ſouth-eaſt, the weſt, and the ſouth-weſt; but I never obſerved, either before they began, or while they continued to blow, any ſhakings of the earth, or roarings, lofty columns of ſmoke, or ſhowers of aſhes. Once only, when a violent ſouth-weſt wind was on the decline, the column of ſmoke which iſſued from the cavern of Vulcano increaſed prodigiouſly, and, from the reſiſtance of the agitated atmoſpheric air, made ſome ſpiry windings; but when it had riſen ſome poles above the upper edge of the crater, it began to grow thinner, and ſoon after entirely vaniſhed. Though the wind ceaſed to blow, this prodigious cloud of ſmoke ſtill continued to riſe for ſeveral hours. I muſt add, that I once remarked the ſmoke of Vulcano to be extremely thin, and little in quantity, when a ſtrong weſt wind blew; and that twice, when the air was perfectly calm, I obſerved the ſmoke extremely copious and riſing to a great height. To conclude, after carefully noticing day by day every change that took place in the phenomena exhibited by Vulcano, during my ſtay in its vicinity, I could perceive none which afforded ſupport to theſe famous prognoſtics. I likewiſe enquired of the ſailors of Lipari, and frequently brought them to confeſs that the fact did not accord with their aſſertions. But, beſides that they did not agree among themſelves, they endeavoured to evade conviction by all thoſe excuſes and pretexts which I have obſerved ſea-faring people never to want, to ſupport their particular prejudices relative to the ſigns of good or bad weather;

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in consequence of which, they sometimes become the victims of their own credulity by suffering shipwreck.

I am not, however, so positive as to deny the whole of these observations. To know with certainty whether any direct relations exist between the various symptoms of Vulcano and the changes of the atmosphere, it would be necessary to reside for some years in that island, a place truly wild and desolate; and he who, like Empedocles at Etna, should go to erect his dwelling there, in order to observe the changes of the mountain, would have no other companions than the rabbits which make their burrows on the southern side of the island.

Disregarding, however, at present the pretended relations, observed by Signor Rossi, between Vulcano and the winds; if the accounts of the eruptions which then from time to time issued from its crater may be relied on, we must own that at that period the convulsions of this mountain were much more violent and frequent than they are at present: a fact which accords with the observations of M. d'Orville and Father Bartoli.

Before I conclude my remarks on Vulcano, two things remain for me to notice, agreeably to the plan I have followed relatively to the other Eolian isles. First, to specify the results obtained by our common fires in those kinds of rock which, liquefied by subterranean conflagrations, have given birth to the island; and, secondly, to mention the notices left us by the ancient writers relative to Vulcano. The former object of enquiry has been sufficiently discussed, while treating of Stromboli, where we have detailed the changes undergone in the furnace by porphyritic rocks; since, as has been already shewn, rocks of a similar kind have furnished the materials of which Vulcano is composed. We have therefore only to treat of the latter of these subjects.

We are indebted to Thucydides for the first account we have of this island. He relates in his history, that in his time Vulcano threw out a considerable flame by night, and smoke by day *.

Aristotle, in his Treatise concerning Meteors, describes an ancient eruption of Vulcano, a part of which swelled and rose, with great noise, into a hill; which bursting, a violent wind issued forth, together with fire, and so great a quantity of ashes as entirely to cover the neighbouring city of Lipari, and extend to several of the towns of Italy. This eruption was still visible in his time †.

The interesting observations of Polybius relative to the number, size, and figure of the craters of Vulcano, are likewise particularly deserving our notice. In his time there were three; two tolerably well preserved, and one in part fallen in. The mouth of the larger, which was round, was about five stadia, or five-eighths of an Italian mile, in circuit. This crater towards the bottom grew gradually less, till at last it was only fifty feet in diameter; this part was one stadium above the level of the sea. The form of the other two craters was the same ‡.

Such is the account of Polybius, as quoted by Strabo, who himself tells us of three openings or craters at Vulcano, from which flames issued, and ignited matters were thrown out, that filled up a part of the sea of considerable extent §.

* Την νυκτα φαινεται πυρ αναδιδουσα (Ἱερα) πολυ, και την ἡμεραν καπνον.

† Εν Ἱερα εξανωδει τι τῆς γῆς, και ανηει οιον λοφωδης ογκος μετα ψοφου τελος δε ῥαγεντος, εξηλθε πνευμα πολυ, και τον φεψαλον και την τεφραν ανηνεγκε, και τηνδε Λιπαραιων πολιν, ουσαν ου πορρω πασαν κατετιφρωσε, και εις ενιας των εν Ιταλια πολεων ηλθε Lib ii. cap 8.

‡ Πολυβιος δε τῶν τριῶν κρατηρων τον μεν κατεῤῥυηκεναι φησιν εκ μερους, τους δε συμμενειν, τον δε μεγιστον το χειλος εχειν, περιφερες ον, πεντε σταδιων κατ' ολιγον δε συναγεσθαι εις ν ποδῶν διαμετρος καθ' ὃ βαθος ειναι το μεχρι θαλασσης σταδιαιον. Strab. lib. iv.

§ Εχει δε αναπνοας τρεις, ως αν εκ τριων κρατηρων. εκ δε του μεγιστου και μυδρος αι φλογες αναφερουσιν, οι προσκεχωκασιν ηδη πολυ μερος του πορου. Strab. lib. vi.

From

From the two latter paſſages we learn, therefore, that anciently there were in Vulcano three burning mouths, or more properly craters, and that one of them was very large. Are we to conclude that this larger crater was the ſame that at preſent exiſts, and which ſince that time may have increaſed its dimenſions? This may poſſibly be the truth; and it may perhaps be equally ſo, that of the three craters mentioned by Polybius and Strabo, two ſtill remained in the time of d'Orville, who found a double burning crater at Vulcano, though at preſent there is only one; the other two no longer appearing, either becauſe they have fallen in, or been filled with earth by the rains, or poſſibly have been covered by ſubſequent ejections.

From the text of Strabo it may be inferred, that in his time Vulcano ejected lava, ſince the burning matter thrown out filled up a part of the ſea of conſiderable extent.

Callias, in his Life of Agathocles Tyrant of Syracuſe, relates that on a lofty eminence of Vulcano there were two craters, one of which was three ſtadia in circumference, caſting a great light to a vaſt diſtance; and that from this mouth burning ſtones, of a prodigious ſize, were thrown out with ſo great a noiſe that it might be heard to the diſtance of five hundred ſtadia *.

If, therefore, we believe the teſtimony of Diodorus and Fazello, who, as natives of Sicily, have the beſt claim to our attention, we have already ſeen, when treating of Stromboli, that the former aſſerts that both that iſland and Vulcano threw out ſands and burning ſtones; and we learn from the latter, that Vulcano was in a continual ſtate of conflagration; and that from its gulph, which lay in the middle of the iſland, a cloud of thick ſmoke continually iſſued, while through the fiſſures of the ſtones, and narrow apertures, a pale flame aroſe in the midſt of the dark cloud †.

Cluverius likewiſe affirms, that from the neighbouring ſhore of Sicily he had himſelf obſerved by night a ſimilar fire amid the dark ſmoke ‡.

And here it is proper, with Cluverius, to correct a miſtake of Fazello, who, relying on the authority of ſome ſuperficial writer, has been induced to believe that the iſland of Vulcano emerged from the ſea in the year of Rome 550, without reflecting that, two hundred years before that period, it is mentioned by Thucydides, and that Ariſtotle, about a century after him, had deſcribed one of its eruptions. The miſtake has been occaſioned by the origin of Vulcanello, which about this time aroſe out of the water. Pliny has remarked that when this iſland was thrown up, a great number of fiſh were found dead, and cauſed the death of thoſe who ate of them.

The ſame Fazello relates, that Vulcano was ſeparated from Vulcanello by a narrow channel of the ſea, in which ſhips might lie with ſafety; and that this ſtrait was open in his time, but afterwards filled up by new eruptions of Vulcano §.

The brief ſtatement of facts recorded by hiſtory, when compared with the obſervations of Bartoli, d'Orville, De Luc, Dolomieu, and myſelf, clearly proves that this iſland

* Ιστορει Καλλιας, εν δεκατω των περι Αγαθοκλεα, λεγων εἶναι και λοφον ὑψηλον, ἐφ' ᾧ χρατηρες εισι δυο, ων ὁ ἑτερος ἐστι την περιμετρον τρισταδιος, ἐξ ᾧ πολυ φερεται φεγγος, ὡστε επι πολυν τοπον δηκειν φωτισμον· επειτα εκ τε χασμαλος αγκφερονται διαπυροι λιθοι απλετομεγιθεις· και τηλικουτος βρομος γινεται, ὡστε επι πεντακοσια σταδια ακκεισθαι τον ηχον. Scholiaſt. in Apollon. Argonaut. lib. iii.

† Hæc (Vulcani Inſula) in medio mari aquis circumfuſa perpetuo ardet. Enimvero ex voragine, quæ in medio patet, jugiter ingentem fumi nebulam hodie eructat. Intus vero per juncturas lapidum, et cancellos, anguſtoſque meatus exurens, ſimul, et pallens ignis inter ipſam fumoſam caliginem emittitur. Hiſtor. lib. i.

‡ Hujuſmodi inter fumoſam caliginem pallentem ignem egomet nocte e proximo littore Siculo deſpexi.—Ubi ſup.

§ Vulcanellus tenuiſſimo Euripo a Vulcania (Inſula) recedit . . . . . Euripus ad ætatem uſque meam pervius, ac fida navigiis ſtatio, nunc, interjecta ex Vulcaniæ caminis cinerum ac lapidum mole, præcluſus eſt. —Ubi ſup.

is

is a volcano which may be compared to Veſuvius or Etna, with reſpect to the changes in its craters, the variety of its eruptions, and its longer or ſhorter intervals of repoſe; except that, from the want of aliment for its fires, its ejections are leſs frequent and leſs copious.

From the authorities above adduced, we perceive that the fires of this mountain are very ancient, ſince they burned in the age when Thucydides flouriſhed, or 475 years before the Chriſtian æra. This iſland was then called *Hiera* (Ἱερα), or the ſacred iſle, as being ſacred to Vulcan; for the inhabitants of the neighbouring iſlands, as Thucydides informs us, perceiving it continually to flame by night, and ſmoke by day, believed it was the reſidence and forge of that god *. It is however extremely probable that theſe volcanic conflagrations are much more ancient than this period; as is the iſland where they are produced, which no doubt derived its origin from fire, though its formation is concealed amid the darkneſs of the moſt remote ages.

The accounts here given of the preſent ſtate of Vulcano, clearly ſhew the miſtake of Sir William Hamilton, who compares it to Solfatara near Naples; a miſtake occaſioned by his not having viſited the iſland.

We have ſpoken above of the opinion of many of the natives of Lipari, that it is poſſible to foretel with certainty what winds will blow, from the different appearances of the ſmoke of Vulcano. I find that the ancients likewiſe boaſted the knowledge of the ſame prognoſtics. They inform us that before a ſouth wind blew, the iſland of Vulcano was enveloped in a dark cloud, ſo that Sicily could not be ſeen; and that when a north wind was to be expected, a pure flame roſe high above the crater, and the roarings were more violent; while a kind of I know not what middle ſymptoms preceded the zephyr or weſt wind. The various ſounds of the exploſions likewiſe, and the different places where the eruptions began, the flames, and the ſmoke, were all prognoſtics of the wind which ſhould blow after the third day. Such is the account of Polybius, who has been copied by all the writers who have ſucceeded him †.

Theſe prognoſtics, however, which the Greek hiſtorian probably received from the mariners, accord but little with thoſe of Signor Roſſi above cited, and ſtill leſs with the phenomena obſervable in Vulcano at preſent; either becauſe ſuch indicatory ſigns can no longer take place, now that the volcano is in a comparative ſtate of tranquillity; or becauſe theſe boaſted predictions originated more in exaggeration and credulity than the faithful teſtimony of the ſenſes.

* Νομιζουσι δε οι εκεινη ανθρωποι, εν τη Ἱερα ὡς ὁ Ἡφαιστος χαλκευει. Thucyd. ubi ſup.

† Ἐαν μεν εν νοτος μελλη πλειν, αχλυν ομιχλωδη καλαχεισθαι κυκλω φησι της νησιδος, ὡστ μηδε την Σικελιαν απωθεν φαινεσθαι. οταν δε βορεας, φλογας καθαρας απο τε λεχθεντος κρατηρος εις ὑψος εξκαιεσθαι, και βρομους εκπε μπεσθαι μειζους. Τον δε ζεφυρον μεσην τινα εχειν ταξιν. εκ τε δη της διαφορας των βρομων, και εκ τε ποθεν αρχεται τα αναφυσηματα, και αι φλογες, και αι λιγυες, προσημαινεσθαι και τον μς ἡμεραν τριτον παλιν μελλοντα πνεμον πλειν. Polyb. ap. Strab. lib. vi.

CHAP. XV.—LIPARI.

PART THE FIRST.

OBSERVATIONS MADE ROUND THE SHORES OF THE ISLAND.

Unavoidable delays in making the circuit of the iſland.—The city of Lipari and its harbour.—Immenſe rock of lava and glaſs on which the caſtle of Lipari is founded.—Reaſons for believing that the internal part of this rock is a true glaſs.—Other proofs of the ancient exiſtence of fire in that place, derived from the pumices of the ſame rock.—Our common fire acts on volcanic glaſſes differently from the ſubterranean fires.—Other obſervations made within the harbour.—Porphyritic lava of a beautiful red found in its vicinity.—The author leaves the harbour, and makes the circuit of the iſland, proceeding towards the North.—The enormous breaches made by the ſea in the ſhores of the Eolian iſlands extremely favourable to the diſcovery of volcanic products.—Another red porphyritic lava.—Extraordinary courſe of another lava.—The Campo Bianco (White Field), ſo called from the white pumices of which it is an entire mountain.—Their different ſpecies deſcribed in detail.—Analyſis of theſe and other kinds of pumices in the humid way.—Diſcuſſion of the different opinions relative to this kind of volcanic products.—The Monte della Caſtagna compoſed of vitrifications and enamels.—Properties of theſe.—Capillary vitrifications.—Others which may be conſidered as in a ſtate of tranſition from pumice to glaſs.—Not probable that the glaſs paſſes into pumice, as ſome have believed.—Reſemblance and difference of theſe two ſubſtances.—Enumeration of ſome other kinds of glaſſes, one of which greatly reſembles what is called the Iceland agate, or gallinaceous ſtone of Peru.—Glaſſy lavas of the Monte della Caſtagna.—This mountain and Campo Bianco, with their environs, form a vitrified maſs eight miles in circuit.—This vitrification more extenſive in ancient times.—No characteriſtic ſign of the exiſtence of the ancient volcanos on the ſides of this mountain.—Indubitable proofs, however, that ſome of the above-mentioned vitreous ſubſtances have flowed, and others been thrown up, from volcanic gulphs.—Felt-ſpars and petroſilex commonly the baſe of theſe vitrifications.—Queſtion, whether the vitreous parts, incorporated with or continued through the different lavas, owe their origin to a more vehement action of the fire, or to their being more eaſily vitrifiable.—Singular phenomenon relative to this ſubject.—Univerſal ſterility of this extenſive vitrified tract.—Uncertainty of the rule which eſtimates the dates of lavas from their being more or leſs converted into vegetable earth.—Multiplicity of lavas decompoſed by ſulphureous acids, and variouſly coloured by the oxyde of iron, found beyond the Monte della Caſtagna.—Decompoſitions of other lavas, occaſioned by the ſame acids, and other enamels and pumices found on the ſhores of the iſland.—Extremely minute ſhoerls, and beautiful quartzoſe cryſtals, and chalcedonies, originating from filtration, in ſome decompoſed lavas.—Two large rocks in the narrow channel which divides Lipari from Vulcano.—This channel in ancient times muſt have been narrower than at preſent.—Conjecture that it once did not exiſt, and, conſequently, that theſe two iſlands formed but one.—Figure of the Monte della Guardia ſeen from the ſea.—Its rocks of lavas, pumices, and vitrifications.—Prodigious quantity of vitreous eruptions which compoſe this mountain.

THIS iſland, from its extent, the city which renders it illuſtrious, the number of its inhabitants, its commerce and agriculture, claims pre-eminence above all the others by which

which it is furrounded, and which from it derive the name of the Lipari iſlands. Nor is it leſs important in the eſtimation of the naturaliſt, from the quantity, variety and unuſual beauty of the volcanic products it contains. M. Dolomieu, during the four days he remained here, gathered as ample a harveſt as within ſo ſhort a time could be expected from the moſt diſcerning and indefatigable lithologiſt; but it is eaſy to conceive that he muſt ſtill leave much to be diſcovered in an iſland nineteen miles in circuit. During the eighteen days that I remained there, I may ſay that the ſickle was never out of my hand; yet I will freely confeſs that I left behind me many a handful, which I would willingly have gathered, had this volcanic iſland been leſs diſtant from my home.

For the ſake of order in my account of the obſervations I made in this iſland, I ſhall firſt ſtate thoſe which occurred to me in making its circuit, and examining its ſhores; and next, thoſe I made in its interior, and in aſcending its mountains. My remarks will thus, naturally, be divided into two parts.

PART THE FIRST.

Obſervations made round the ſhores of Lipari.

IN making this circuit, that I might perform it completely, I employed more time than I had imagined it could require. Beſides the time neceſſary for remaining with the boat at a little diſtance from the ſhore to obſerve the different courſes taken by the volcanic matters, in their way to the ſea, when liquified by the power of the fire; beſides that conſumed in landing to examine theſe matters more nearly, and breaking them to pieces with ſuitable inſtruments, that I might collect and preſerve them; laſtly, beſides the time requiſite to aſcend or rather to climb up, ſteep rocks, cliffs, and precipices, which roſe from the waves, at the termination of the courſe of the eruptions; I was not a little delayed by the obſtacles which continually oppoſed the execution of my deſign. How often, when I attempted to proſecute my intended circuit while the ſea was calm and ſmooth as the moſt placid lake, have I been obliged to deſiſt, and return with my boat, by a wind ſuddenly riſing, either contrary, or blowing in upon the land, ſo as to expoſe me to the danger of being driven upon the ſhore, and ſhipwrecked on the rocks! Frequently, though the ſea was ſufficiently calm for a conſiderable diſtance, yet, where the coaſt broke off, or ſunk in, I found it running high, from the remains of a ſtorm that had not long ceaſed, or, as it is termed, an old ſea, which my boat was unable to encounter without great danger. Every one who is acquainted with the ſea that furrounds the Eolian iſles, knows how liable it is to ſudden tempeſts.

The city of Lipari extends along the ſhore in the form of an amphitheatre. Behind it riſe a chain of mountains; and in front is its harbour, formed by the hollowing in of the ſea, which here divides the ſhore. I omit to mention another very ſmall harbour to the ſouth, only fit for the reception of ſuch veſſels as may be drawn up on ſhore.

I began my reſearches in the harbour itſelf, under the caſtle of the city, which is erected on an immenſe rock of lava, that riſes perpendicularly from the water, and is entirely deſtitute of all vegetation except a few ſtalks of the Indian fig *, which grow in its fiſſures.

This lava has for its baſe feltſpar, is of a fine and compact grain, of a ſcaly fracture, dry to the touch, and gives ſparks, like flint, with ſteel. It is of a cinereous colour, in many places approaching to that of lead. It is full of an immenſe quantity of ſmall extraneous bodies, which would be with difficulty diſtinguiſhed from the ſubſtance of the

* Cactus Opuntia. Lin.

lava

lava on account of their reſemblance in colour, were they not little globes. This lava is joined to large maſſes of glaſs, which form a whole with it, without any diviſions or ſeparations in the middle. It therefore is the ſame lava, which in ſome places retains its nature, and in others is tranſmuted to glaſs. This glaſs in ſome parts contains the ſmall extraneous bodies before mentioned, but in others it is pure glaſs. In general it is extremely compact, of a dull black colour, and fractures rather in irregular pieces than in waving ſtreaks, as is uſual with glaſs. It has beſides a kind of unctuoſity to the touch, and even apparent to the eye, which is not obſervable in any other of the moſt perfect volcanic glaſſes. Like the lava it gives ſparks with ſteel; but the lava is entirely opake, whereas the glaſs in the angles and thinner edges, has a conſiderable degree of tranſparency. It only appears opake where it contains the minute globes, which are particles of the lava. Though the lava in the fractures has not the luſtre of the glaſs of which it is a continuation, yet when cut and poliſhed, it is not in the leaſt inferior to it in that reſpect. I poſſeſs ſeveral pieces, cut and poliſhed, which are half glaſs and half lava, and of which the different colours form an excellent contraſt.

An obſervation which I made relative to this kind of glaſs appears to me too important to be omitted.

If we take a piece of this glaſs, ſix or ſeven feet in length, and four or five thick, and attentively examine it, we ſhall diſcover that it is marked with ſmall grey veins parallel to each other, which give it the appearance of being divided into ſtrata or flakes; and if the point of a large pickaxe be ſtruck by a powerful arm into one of theſe veins, and uſed as a lever, the whole maſs will ſplit into two parts, from one end to the other, following the courſe of the vein; and with equal facility, by proceeding in the ſame manner, may new diviſions of the glaſs be obtained in the other veins, till the whole piece is divided into a number of plates proportionate to the number of veins: but if we attempt to divide them in any other part but the vein, they only break into ſmall irregular fragments.

When we examine the face of one of the plates thus divided, we perceive that every vein conſiſts of a thin leaf of earthy and ſcoriaceous particles, which prevents the vitreous ſtrata from perfectly uniting. The direction of theſe veins, which interſect the glaſs tranſverſely, is generally from above to below; and it appears evident to me, that the plates or ſections of glaſs interpoſed between the veins have been produced by as many different flowings of the fluid matter. The formation of the earthy veins I conceive to have been as follows: the firſt ſtream, that is to ſay the loweſt of all, containing lighter and leſs fuſible particles than the remainder of the liquefied vitreous matter, theſe floated on the top; and the glaſſy current, cooling, produced, or rather left on the ſurface, a firſt pulverous coating, which prevented the perfect union of the ſecond current that ſucceeded the firſt; and this ſecond, containing ſimilar ſubtile matters, prevented in like manner the full adheſion of the third, and ſo of the reſt. Thus have ſucceſſive flowings of the liquid matter produced the maſſes of glaſs we now ſee, exhibiting thoſe apparent veins, in which they may be ſo eaſily ſplit. But as we ſhall have occaſion to ſpeak of other glaſſes, in another place, we ſhall then have an opportunity to reſume the ſubject of this peculiar texture.

Such were the obſervations I made on that rock, and ſome fragments which had fallen down from it on the ſhore; ſince, though it is compoſed of hard lava and glaſs, yet from the numerous fiſſures in it, cauſed by congelation, it has ſuſtained many loſſes. In fact there is danger that it may become ſo entirely ruinous as to occaſion its fall, together with that of the caſtle it ſupports.

I cannot

I cannot diſmiſs this ſubject without mentioning certain circumſtances which induce me to believe that the inſide of this rock is one prodigious maſs of glaſs. The waves of the ſea, by inceſſantly beating againſt it, have corroded it in ſeveral places, but eſpecially towards the middle, where they have formed a ſpacious cavern; which, as the lower part of it is covered with water, I entered in my boat, and found that the ſides were real and ſolid glaſs.

In other places, againſt which the ſea has daſhed, and more or leſs broken the rock, the ſame vitreous ſubſtance is apparent. If we aſcend from the ſhore to the caſtle, in more than one place near the road, which lies over lava, we find volcanic glaſs In the ſmall ſquare, near the houſe of the commandant, we find it riſing above the ground in large pieces reſembling ſteps. Great maſſes of it likewiſe project from the ground within the city, in two places of which, having cauſed the earth to be dug into, I found the ſame glaſs.

All theſe facts and obſervations appear to me ſufficiently to ſupport my opinion, which, as I have ſaid, is, that the inſide of this vaſt rock is entirely of glaſs. We perceive therefore that though on making the circuit of the other parts of the iſland, we ſhould not be able ſatisfactorily to aſcertain its nature, theſe facts alone would be more than ſufficient to prove it volcanic; and an intelligent though indolent traveller, who on arriving at Lipari ſhould only take the trouble to go over the city, would perceive, in a few hours, what in many other countries, once ſubjected to the action of fire, he would not be able to diſcover in a much greater number of days.

But the indubitable teſtimonies of the ancient exiſtence of fire in this place do not conclude here. The vitreous ſubſtances are frequently accompanied by pumices which are, in fact, only an imperfect glaſs. If we view the ſteep maſſes of glaſs and lava, which riſe perpendicularly from the ſea, like a wall; we perceive that they are interſperſed with different ſtrata of pumice, from which, by the aid of a pole tipped with iron, ſmall pieces may be broken off. On the ſhore, however, we do not find it in any great quantities.

This pumice is of two kinds, the one heavy and compact, the other light and porous, and both of a cinereous colour. The compactneſs of the former ſpecies, however, is not ſo great, but it may be broken into ſmall pieces, and crumbled into powder between the fingers. It is dry and rough to the touch, is filamentous in many places, and crackles between the teeth; qualities appertaining to common pumices. Its ſtructure is not every where filamentous, but in ſome places ſo fixed that its fibrous texture cannot be diſcerned. By the aid of the lens we perceive that it is of a vitreous nature, and diſcovers an infinity of lucid points, which we might take for very minute feltſpars, did not a careful examination with a good magnifier ſhew them to be real particles of glaſs. It cannot be denied, that this pumice is of the ſame nature with the lava of the rock, ſince we ſee, in many places, the lava gradually loſe its ſolidity and fineneſs of grain, and aſſume the characters of this ſpecies of pumice.

The other kind is rather ſcaly than filamentous, and its ſcales have a degree more of vitrification than the other; the confluence, likewiſe, of ſome of theſe ſcales has produced, in ſeveral places, ſmall lumps of a black glaſs. It is, however, extremely light in conſequence of the pores and vacuities with which it abounds. This pumice is uſually a continuation of the other, and, in my opinion, derives its origin from the greater degree of heat which it has ſuſtained.

After having examined, and attentively conſidered on the ſpot, this mixture of lava, glaſs, and pumice which forms the body of the rock it appears evident to me that there have been ſeveral currents that have flowed down the ſides, and, perhaps, from the ſummit,

mit, of the contiguous mountain della Guardia, into the ſea, ſince the direction of their deſcent is found on that ſide, and even the filaments of the pumices point towards that mountain.

If we except thoſe minute globules, which appear to me to be portions of lava, this lava, glaſs and pumice, exhibit neither feltſpars, ſhoerls, nor any other extraneous body; either becauſe theſe have been melted by the fire, or, perhaps, becauſe they never exiſted in them. But in what manner this fire muſt have acted in fuſing thoſe maſſes of feltſpar of which the rock that ſupports the caſtle of Lipari is formed, ſo that this ſtone ſhould now have remained a ſimple lava, and now have paſſed into the ſtate of glaſs or pumice, ſhall be conſidered in another place; at preſent I ſhall proceed to ſtate other facts analogous to the ſame ſubject.

The lava and glaſs of the rock, when expoſed to the furnace in ſeparate crucibles, fuſed into a light grey glaſs, the globules which before appeared in them melting at the ſame time. This glaſs is incredibly porous. Though the crucible in which theſe ſubſtances were fuſed was only filled to one quarter part of its contents, they ſwelled ſo much when in a ſtate of liquefaction, that they roſe ſeveral lines above the edges of the crucible, and flowed over, down its ſide.

The two kinds of pumice, though both derive their origin from the ſame feltſpar, which is the baſe both of the lava and the glaſs, afford different reſults in the ſame fire; ſince their volume inſtead of augmenting is diminiſhed, only retaining its former colour.

The tumefaction or inflation of this glaſs may, perhaps, excite ſome ſurpriſe; ſince it implies a prodigious quantity of gaſeous bubbles contained within it; whereas nothing of the kind is obſervable in it, when it is acted on by the fire. But we ſhall ſee hereafter that this is an appearance common to almoſt all glaſſes and compact volcanic enamels, and which I ſhall conſider when I come to ſpeak of the nature of the gaſeous ſubſtances that frequently tumefy more or leſs different volcanic products: at preſent my object is only to ſtate and compare facts. I ſhall only ſay that I have never met with any thing ſimilar in the re-fuſion, not only of common factitious glaſs, but even of that which is ſometimes produced in the furnaces for baking bricks and tiles. A few years ago a large piece of glaſs was put into my hands which was ſaid to be volcanic, but of which I entertained doubts, ſince, though in its great weight and hardneſs it reſembled the volcanic glaſſes, it differed from them in certain ſpots and blueiſh ſtreaks, and in a kind of little ſtars which ſeemed to indicate a principle of cryſtallization in this glaſs; neither of which appearances I ever obſerved in the glaſſes of volcanos; and on a careful examination, to diſcover with certainty its origin, I found that this glaſs had been brought from a tile-kiln. When re-melted in a glaſs furnace it retained its former ſolidity and compactneſs, without exhibiting the ſmalleſt pore or bubble; and inſtead of ſwelling in the crucible, and aſſuming a convex ſuperficies, it ſunk, and acquired a concave one. I have obſerved the ſame in two other ſimilar glaſſes.

The haven of Lipari forms a curve in the ſhore, which to the ſouth begins at the foot of the Monte Capiſcello, and ends to the north-eaſt at the bottom of the Monte della Roſa. After having therefore examined that part of the ſhore which is contiguous to the harbour, lying under the caſtle, and on the right ſide of Monte Capiſcello, I made the circuit of the remainder of that curve to the baſe of Monte della Roſa. The objects which here attracted my notice were firſt a tufa above a lava, which the induſtry of the inhabitants had converted into a ſoil ſuitable to ſmall vineyards; and next a maſs of crags and precipices, partly fallen into the ſea, and partly threatening to fall, among which, beſides ſcoriæ of an iron colour, we meet with beautiful volcanic breccias of a lava of a petroſiliceous baſe, and containing ſmall particles of glaſs and pumice.

I cannot

I cannot think of this place without ſhuddering at the dreadful danger to which I ſhould have been expoſed had I viſited it two days later. I was there on the 21ſt of September, and examined the breccias which had fallen down on the ſhore, and thoſe, much more numerous, and more deſerving attention, which remained ſtill attached to the rugged declivity that deſcends into the ſea. On the 23d in the afternoon, almoſt the whole of this declivity fell down with a dreadful craſh. I was at that time taking my afternoon's nap in the houſe which had been politely appointed for my reception by the Conſul of Lipari, and is ſituated on the ſhore of the harbour. The noiſe immediately waked me, and at firſt I could not tell whether it was a violent clap of thunder, an earthquake, or the roaring of the waves in a tempeſt. I ran to the window, and perceived that it came from the declivity I have deſcribed, but could diſcern nothing but an immenſe cloud of duſt by which it was covered. The noiſe laſted, perhaps, five minutes; and when the cloud of duſt had ſomewhat diſperſed, I perceived it was occaſioned by a prodigious quantity of ſtones that had fallen down into the ſea, and that a great number continued ſtill falling.

Two ſenſations, on this occaſion, moſt powerfully affected my mind; the one of ſhuddering and horror on reflecting that my deſtruction muſt have been inevitable had I poſtponed my viſit to this place two days and a half, and the other of ſatisfaction and joy at my fortunate eſcape.

The fall of ſo great a quantity of ſtones, produced a large longitudinal furrow in the declivity, and a ſmall indentation in the ſea. The next day I procured ſeveral of theſe ſtones, and found that they were pieces of lava, partly of the horn-ſtone baſe, and partly of that of feltſpar. The latter had a fine grain, and ſome tranſparency when in thin pieces; the former were of a coarſer grain, and opake. When I went in the boat to examine the part of the mountain where theſe ſtones had fallen, I perceived that it was formed of looſe volcanic ſtones, which were very liable to fall from the ſteepneſs of the declivity, and I judged them to be fragments of lava, detached by length of time, from a more elevated rock, and afterwards accumulated below, at a little diſtance from the ſea.

Having arrived at the foot of the Monte della Roſa, where, as I have ſaid, the harbour of Lipari ends, I perceived on the ſhore a ſtone, which, from its ſingularity, drew my attention. It forms a rock that in part riſes above the ſea, and in part is concealed by the water. There are alſo ſeveral detached pieces of it which have been made round by the action of the waves. I, at firſt, took it for a jaſper. Its ground was of a blood-red colour; it gave ſparks ſtrongly with ſteel, was of a rather fine grain, and had almoſt the hardneſs of quartz. When I firſt ſaw it, it reminded me of the jaſper I had obſerved and collected at Schemnitz in Lower Hungary, under the hill Calvario, and of which ſome ſpecimens are preſerved in the Imperial muſeum, it appearing to me that theſe two ſtones were extremely ſimilar; but on a more attentive examination, I perceived that this ſtone was not ſimple like the jaſper, but of a compound formation, containing in it reddiſh ſcales of feltſpar, and ſhoerls, which gave it the character of that kind of porphyry which has for its baſe a hard horn-ſtone. But is this porphyry in a natural ſtate, or in that of lava? Lavas of a red, and a bright red, colour, I confeſs, I had never before ſeen, nor do I know that they have been obſerved by any other naturaliſt; and I therefore doubt whether the detached red porphyry I found at Stromboli had ever ſuffered the action of the fire. It is true that many lavas near the ſtoves of Lipari and elſewhere have this colour, as we ſhall ſee in the following chapter; but this ariſes from the decompoſition they have ſuffered by the force of ſulphureous acids, and the action of iron: and I ſhall there ſhew that the red colour (and the ſame may be

ſaid of the white, green, and other colours) has only penetrated as far as the action of theſe acids, and, conſequently, the decompoſition, has extended; but where the lava remains untouched by them, it ſtill retains its natural colour, that is, either a grey or the colour of lead or iron, but without any mixture of red. We do not, however, diſcover any traces of decompoſition in the production of which I now ſpeak. After the moſt careful examination, I cannot exclude it from the number of true and real lavas; though, on the other hand, I am unable to affirm that its redneſs is an effect of calcination, as is the caſe in other lavas, ſince of this it does not exhibit the ſlighteſt indication. We muſt here, therefore, have recourſe to one of thoſe limitations which experience has obliged us to admit in many other rules of philoſophy, which were at firſt thought to be abſolutely general, but afterwards found to be ſubject to more than one exception. The reaſons of fact on which I found my aſſertion, that this porphyritic rock has paſſed into the ſtate of lava, are two: the great number of minute cells it contains in many parts of it, and the direction of thoſe cells. Where local circumſtances are inſufficient to determine, the compact lavas rarely leave the enquirer in doubt whether they derive their origin from fire, as the fire has not ſo changed them as to deſtroy the characters of the ſtone from which they were produced. But it is not the ſame with the cellular, ſince it is known that their configuration can only be the effect of aëriform fluids, put in motion by the action of the fire. This cellular conformation is found in the preſent ſtone. The cells in many large pieces are ſo numerous, as to occupy nearly one half of the volume of the ſtone. The largeſt are about five lines, and the ſmalleſt a quarter of a line; but between theſe two extremes there are an infinity of intermediary ſizes. It is worthy of remark, that theſe cells are not only ſuperficial, but extend into the internal part of the maſs, as is ſeen in fractures two or three feet in depth, which may ſerve to obviate the objection that even ſtones not of volcanic origin are ſometimes cellular, ſince it is known that their cells or minute cavities are merely ſuperficial, and originate from the corroſion of ſome of their external parts, by the filtration of the rain-water. This proof is ſupported by another ſtill ſtronger, taken from the direction of the cells, which is the ſame in all, as well in the pieces detached from the rock, and deprived of their ſharp edges by the waves, as in the rock itſelf. This direction is every where found to be from the Monte della Roſa to the ſea, as they form ellipſes more or leſs acute, the greater diameters of which are invariably in that poſition, and this greater diameter is frequently twice or three times the length of the leſs. This ſtone, therefore, is not only a true porphyritic lava, but it is evident that it once flowed from the mountain above mentioned to the ſea, and in its motion the naturally circular figure of its pores or cells was changed into an oval. I have almoſt always obſerved the ſame appearance, on a ſmaller ſcale, in re-melted lavas, and glaſſes. As long as the matter in fuſion remains within the crucible, the bubbles are orbicular, but become elliptical in that part of it which overflowing the edges runs down the ſide of the crucible; and the greater diameter of theſe ellipſes is generally in the direction of that ſide.

All the pieces of this kind of lava are not, however, of a blood-red colour; ſome of them are of a duller red, though the component principles of both are eſſentially the ſame.

This lava, when fuſed in the furnace, doubled its volume, and its upper part aſſumed a vitreous convexity, which was ſmooth, ſhining, ſemi-tranſparent, and of a greeniſh tincture; but internally it was a very black vitreous ſcoria, extremely porous, and ſufficiently hard to give ſparks with ſteel.

With theſe obſervations on this uncommon ſpecies of lava, I ſhall conclude the account of my tour round the harbour of Lipari, which may extend about two miles.

According to my propoſed plan, I was now to proceed to make the circuit of the iſland, which I did, taking my departure immediately from the foot of Monte della Roſa, and proceeding towards the north.

At the diſtance of ſomewhat more than three hundred feet a lofty rock riſes from the ſea of a horrid and dreadful aſpect, formed of large plates of ſtone, feebly ſupported by projecting points, and appearing to hang in the air, and threatening to fall, as many have already, the fragments of which are ſeen on the ſhore. I muſt candidly confeſs, that, after the fall of the rock I have already mentioned, I approached this with no ſmall dread. My ardour to make ſome new diſcoveries, however, triumphed; and, as I was afterwards frequently obliged to riſk myſelf in ſimilar ſituations, in order to examine accurately the ſhores of the iſland, I gradually acquired an habitual courage, and became almoſt incapable of any idea of danger. I hope I may be pardoned this little digreſſion.

The Eolian iſles, eſpecially Lipari, Felicuda, and Alicuda, are, at their baſis, more or leſs corroded by the ſea, which, there, is ſo frequently in a ſtate of violent agitation. The lower excavations cauſe the parts above them to give way, and, in a ſeries of years, great maſſes fall into the ſea. To this the nature of the lava, which is full of cracks and fiſſures, conſiderably contributes; not to mention the influence of the humidity of the atmoſphere, and other deſtructive elements. Large heaps of theſe fragments, in conſequence, accumulate on the ſhore, where they are diſperſed by the waves, and make room for others, and thus a gradual diminution of the iſland takes place.

Theſe corroſions of the water, theſe fiſſures, and fragments of the ſtones and rocks are, however, peculiarly intereſting to the enquiring naturaliſt, who, though he may make important diſcoveries while traverſing the ſummits and ſides of volcanic regions, can never penetrate beyond the ſurface. The internal effects of the fire, the ſubſtances more or leſs modified by it, and ſometimes prodigiouſly changed, even to the entire annihilation of the character of the original ſtone, and many other combinations produced in the ſubterranean receſſes, by this ever active element, can only be known by incavations and fractures which exceed the ſtrength of man to effect, but which, to a certain degree at leaſt, are in many places produced by the ſea. Of this we have already mentioned ſome inſtances, obſerved in making the circuit of the ſhores of the other iſlands, and ſhall adduce others in thoſe which yet remain to be deſcribed; we have alſo a very remarkable example before us, in the half-deſtroyed rock of which we are now ſpeaking.

Above, it is covered with a thick coating of earth, which prevents its true character from being viſible; but on the ſhore it may be very diſtinctly ſeen, and appears to be formed of a lava, in thick ſtrata, taking an oblique direction to the ſea. This lava is likewiſe porphyritic, of a petroſiliceous baſe, containing cryſtallized feltſpars, and, like the other rock I have before mentioned, of a red, but rather a dull red colour. It is not in the leaſt porous, but extremely compact and ſolid, and is conſequently extremely heavy, and rather of a ſiliceous than earthy grain. It lies on the ſhore in large pieces; the ſolidity and beauty of which, when well poliſhed, would render it a no leſs ſplendid ornament in buildings than the porphyries which are not volcanic.

The degree of heat which fuſes the other porphyritic lava is only ſufficient to ſoften the preſent, and make it take the ſhape of the inſide of the crucible and adhere ſtrongly to its ſides. It then aſſumes a black colour, and loſes its compactneſs, becomes filled with ſmall round bubbles. In a more intenſe heat, it melts into an enamel, in like manner black and filled with bubbles: the feltſpars, however, remain untouched, as in the enamel produced from the other porphyritic lava.

Continuing my tour beyond the harbour and the porphyritic rock, I found the ſea form a kind of bay within the land, round which a few cottages are built, affording ſhelter to a ſmall number of inhabitants who live by the profits of a vineyard that but ill repays their labour. The name of this place is Canneto; and above it is a current of lava, of an argillaceous baſe, ſimilar to that of the Arſo in Iſchia *. This lava is not continued without interruption, but, like that of Iſchia, broken, uneven, and here and there raiſed into a kind of little hills. Its external appearance is, on a larger ſcale, that of a field ploughed, with ſeveral furrows in an irregular direction, having great hillocks and deep intervals between them. I have obſerved this appearance in ſeveral other lavas beſide the preſent and that of the Arſo; and the cauſe of ſuch a conformation may, it appears to me, be the following: It frequently happens that the lavas, when they flow, meet with impediments in their way which obſtruct their courſe. When, therefore, ſuch an obſtacle occurs the ſtream muſt ſtop, or its motion become ſlower; but this not taking place in the parts behind, they continue to flow and increaſe the quantity of the lava which ſwells in that place, and, in conſequence of its contact with the cold air, ſoon loſes its fluidity, and is congealed into ſtone. The liquid lava, in the mean time, takes its courſe another way, if the obſtacle is inſurmountable; and if it meets with others, new ſtoppages or retardations are the conſequence, producing other tumours; and thus the lava in many places becomes full of hillocks. It may likewiſe be, that the lavas flowing over places abounding with cavities, of which there are many in volcanic mountains, may partly ſink into them, and thence afterwards riſe ſomewhat above the former level, and thus produce the ſmall elevations which are here obſervable.

I had now continued my tour, in the boat, till I approached Campo Bianco (the White Field), diſtant three miles from the haven of Lipari, and ſo called becauſe it is a lofty and extenſive mountain compoſed entirely of white pumices. When ſeen at a diſtance, it excites the idea that it is covered with ſnow from the ſummit to the foot. Almoſt all the pumices that are employed for various purpoſes in Europe are brought from this immenſe mine, and Italian, French, and other veſſels continually repair hither to take in cargoes of this commodity: the captain of the ſhip which had brought me to Lipari, had ſailed from Marſeilles to carry back a freight of this merchandize. I was not, however, actuated merely by thoſe motives of curioſity that might induce any traveller to viſit this remarkable mountain; I propoſed to examine it with the eye of a philoſopher and a naturaliſt.

The pumice-ſtone, with reſpect to its origin, though univerſally admitted to be the product of fire, is one of thoſe bodies which have divided the opinions of chemiſts and naturaliſts both ancient and modern. It may, in fact, be affirmed that it has given riſe to as many hypotheſes and extravagant ſuppoſitions, as the queſtion formerly ſo much agitated, relative to the nature of the yellow and grey amber. Without noticing the more abſurd of theſe, I ſhall only mention that Pott, Bergman, and Demeſte imagined that pumices were amianthuſes decompoſed by the fire; Wallerius, that they were coal or ſchiſtus calcined; Sage, that they were ſcorified marles; and, laſtly, the Commendator Dolomieu, that they were granites rendered tumefied and fibrous by the action of the fire and aëriform ſubſtances.

The moſt effectual method to inveſtigate the truth in ſo obſcure a queſtion, appeared to me to make the moſt accurate and minute obſervations on the ſpot; to collect and attentively examine the pumices moſt ſuitable to this purpoſe, and to make further ex-

* See Chap. V.

periments

periments on them after my return to Pavia; which practice I likewiſe obſerved with reſpect to the other volcanic products.

Campo Bianco is a mountain that riſes almoſt perpendicularly from the ſea, and which, ſeen at a diſtance, appears to be about a quarter of a mile in height, and above half a mile in breadth. No plants grow on it, except a few which bear no fruit, and likewiſe grow on the tops of the Alps. Its ſides are ſtreaked with a great number of furrows, that grow deeper and wider as they approach the bottom, and have been formed by the rains, which eaſily corrode and excavate a ſubſtance ſo ſoft and yielding as pumice. The ſea at the foot of it has likewiſe occaſioned great devaſtations, by means of which we diſcovered a large vein of horizontal lava on which the laſt waves die away when the ſea becomes calm. The formation of this lava was, therefore, prior to the vaſt accumulation of pumices which reſt upon it.

On attentively viewing this prodigious maſs of pumice, we ſoon perceive that it is not one ſolid whole, and forming only one ſolid ſingle piece; but that it is an aggregation of numerous beds or ſtrata of pumices, ſucceſſively placed on each other; which beds are diſtinguiſhable by their colour, and in many places project from the mountain. They are almoſt all diſpoſed horizontally, and their poſition is not diſſimilar to the ſtratifications ſo frequently met with in calcareous mountains. Each bed of pumice does not form a diſtinct whole, which might lead us to ſuppoſe that they had flowed at different intervals, and every current produced a bed or ſtratum; but it conſiſts of an aggregate of balls of pumice united together, but without adheſion. It is hence evident that the pumices were thrown out by the volcano in a ſtate of fuſion, and took a globoſe form in the air, which they preſerved at the time of their ſudden congelation. We find many ſuch eruptions of pumices in the Phlegrean Fields; as, for example, that which overwhelmed and buried the unfortunate town of Pompeii. The excavations which have been made to exhibit to view ſome parts of that city, manifeſtly ſhew, that repeated ejections of ſmall pumices in immenſe quantities from Veſuvius, have covered it with vaſt accumulations of that ſubſtance, diſpoſed in different beds or ſtrata.

A great quantity of theſe Lipareſe pumices, of a globular form, are firſt met with on the ſhore near Campo Bianco; but as I doubted whether the action of the waves might not concur to produce the roundneſs of their figure, I rather choſe to make my obſervations on thoſe that actually formed the beds, which I did, by climbing up one of the ſides where the aſcent, though difficult, was not impracticable. Here I found pumices approaching, ſome more ſome leſs, to the globular form, and of different ſizes, ſome not being larger than nuts, and others a foot or more in diameter, with innumerable ſizes between theſe extremes. Though the ground colour of them all is white, in ſome it inclines to yellow, and in others to grey. They ſwim in water, do not give ſparks with ſteel, nor cauſe the leaſt motion in the magnetic needle. Their fracture is dry and rough to the touch, their angles and thinner parts are ſlightly tranſparent; and their texture in all of them when viewed through the lens, appears vitreous; but this texture has diverſities which it will be proper to ſpecify.

Some of theſe pumices are ſo compact that the ſmalleſt pore is not viſible to the eye, nor do they exhibit the leaſt trace of a filamentous nature. When viewed through a lens with a ſtrong light, they appear an irregular accumulation of ſmall flakes of ice; their compactneſs, however, does not prevent their ſwimming on the water.

Others are full of pores, and vacuities of a larger ſize, uſually of a round figure; and their texture is formed by filaments and ſtreaks, in general parallel to each other, of a ſhining ſilver whiteneſs; and which, at firſt view, might ſeem to be ſilken, did they not preſent to the touch the uſual roughneſs of the pumice.

Theſe varieties are not only obſervable in different globes of pumice, but frequently in the ſame: it is therefore indubitable that theſe differences are not intrinſical and eſſential to the nature of pumices, but accidental, and ariſing from the action of aëriform fluids, which, dilating them in many places, when they were in a ſtate of fuſion, have produced that multitude of pores, and thoſe filaments and ſubtile ſtreaks that denote a ſeparation of the parts; whereas the other pumices which have not been acted on by theſe gaſes, have preſerved that compactneſs which reſults from the force of aggregation.

The fractures of the compact pumices are, in ſome places, ſhaded with a blackiſh, but at the ſame time ſhining tinge; which, when carefully examined, is found to be cauſed by a greater, though ſtill a very ſlight degree of vitrification of the pumice itſelf; either becauſe the fire has there acted with ſomewhat more force, or becauſe the parts were there more eaſily vitrifiable.

The pumices hitherto deſcribed form one of the ſpecies which the Lipareſe ſell to foreign traders.

None of theſe, ſo far as can be diſcerned by the eye, or even with the aſſiſtance of the lens, contain any extraneous bodies; but were we too haſtily to conclude that they really do not, we ſhould commit an error, as their vitrification by artificial means will prove. When kept in the furnace during an hour they become only more friable and of a reddiſh yellow colour; but when continued in the ſame heat for a longer time, they condenſe into a vitreous and ſemi-tranſparent maſs, within which appear a number of ſmall white feltſpar cryſtals that were not viſible in the pumice, becauſe they were of the ſame colour. Theſe ſtones, however, are not ſeen in every pumice thus fuſed; either becauſe it did not contain them, or becauſe they have melted into one homogeneous maſs with the pumice. This is one of the many important caſes in which we are able, by the means of common fire, to diſcover the compoſition of volcanic products which had at firſt been ſuppoſed to be ſimple.

But to render complete my enquiries relative to the pumices of Campo Bianco, it was neceſſary that I ſhould not confine my reſearches merely to the part of the mountain I have mentioned, but extend them to all the principal places where they might be found. This I did, accompanied by two natives of Lipari, whoſe aſſiſtance was particularly uſeful to me, as they lived by digging pumice, and were well acquainted with every part of the mountain, and the different kinds of pumices it contained. It is impoſſible to deſcribe the difficulties I met with in theſe excurſions. We frequently paſſed along the edges of the deep ditches made by the rain-water, at the hazard, in caſe of a falſe ſtep, of falling into them, and not eaſily getting out again; or the ſtill greater danger of precipitating into the ſea. The dazzling whiteneſs of the pumice, equal to that of ſnow, increaſed my fears; for I made my excurſions in the day-time, when the ſun ſhone, and was ſtrongly reflected by theſe ſtones. Every one knows that ſnow, beſides dazzling the ſight, is accompanied with the inconvenience, when it is deep and has lately fallen, that the perſon who walks on it ſinks into it to a greater or leſs depth: and the ſame inconvenience is experienced from the pumice, which in many parts of Campo Bianco is reduced to a powder ſeveral feet deep, and, when the wind blows on it, ſinks in on one ſide, and is heaped up on the other. All theſe difficulties and obſtacles I however ſurmounted, animated by that ardour which inſpires the philoſophical traveller, and enables him to brave the greateſt dangers, and ſuch as can only be known and appreciated by thoſe who have engaged in ſimilar undertakings. I can affirm, therefore, with great ſatisfaction, that with the aſſiſtance and guidance of the two Lipareſe, there was no corner of the mountain that I did not viſit; and when I reached the ſummit, and ſaw that it joined

joined another mountain, the foot of which was in the ſea, and which was, in like manner, compoſed of pumice, I extended my reſearches to that likewiſe, and examined the different ſpecies of pumice it afforded, or rather which compoſe a very conſiderable part of it. I ſhall proceed to deſcribe them ſeverally, with as much brevity as poſſible.

I ſhall firſt mention thoſe which conſtitute a branch of commerce at Lipari, and are applied to various purpoſes. One of theſe has already been ſufficiently deſcribed: I ſhall only add, that it is found in conſiderable quantities in Campo Bianco, but ſolely in detached pieces, and not forming currents or veins; whence it is evident that it has been ejected from the volcano, and has not flowed in the manner of lava.

The ſecond ſpecies is cut by the labourers in parallelopipeds, about twenty-two inches long, and eight broad. This pumice is of a dark dirty colour, contains no extraneous bodies, gives a few ſparks with ſteel, and is ſo light that ſome pieces of it will float on the water. It is formed by agglomeration of pumiceous bubbles, which are, as it were, conglutinated together, and incline more or leſs to an oblong figure. To detail their various ſizes would be uſeleſs prolixity. I ſhall only ſay, that from the very minute, and, if I may ſo term them, infiniteſimal, they increaſe in ſize till ſome of them exceed an inch in diameter, though the latter are leſs numerous than the former. They are all extremely friable as their ſides are very thin, and always ſemi-vitreous. The glaſs of many of them is white, and has ſome tranſparency, but in others is dull, and almoſt entirely opake.

As I do not know that this ſpecies of pumice has ever been deſcribed before though it certainly well deſerves attention, I would wiſh my deſcription to be as clear and explicit as poſſible. It has been already ſaid that many lavas, and other volcanic productions, on re-fuſion, become cellular. To apply this to the pumice in queſtion would be an error. A lava, which has undergone this change by the action of elaſtic gaſes, continues to form one whole, though interrupted by theſe multiplied pores. The pumice of which I now ſpeak is principally formed by an accumulation of ſmall vitreous veſicles, which attach themſelves to each other while they were yet ſoft from the action of the fire; and which, from their globoſe figure, not adhering except in a few points, have left many vacuities very viſible in the fracture of the pieces. The labourers who dig theſe pumices, after they have ſhaped them into parallelopipeds, take them on their backs and carry them down to the ſhore, where they pile them up in large heaps, to be ready for ſale when opportunity ſhall offer. We are not to imagine, however, that this ſpecies of pumice is to be found in every part of the mountain: the workmen, to find what they call the vein of it, are obliged to make great excavations, and frequently without ſucceſs, which, as they told me, in this caſe, as in fiſhing for coral, often depends on chance. When they have found the vein they dig it, following its direction; in which laborious employment a number of men are occupied for whole weeks, the vein being ſometimes a hundred and fifty, two hundred, or even three hundred feet long, and large in proportion. Theſe veins are called *Faraglioni*. I have examined them, and ſatisfied myſelf, that the accounts I received were true. Pumice-duſt, and large heaps of the firſt ſpecies of pumice, with ſome ſcattered vitrifications, uſually cover theſe veins, which, when viewed with the attentive eye of the naturaliſt, give reaſon to believe that they are long tracts of pumice, which once flowed in a liquid ſtate. Their bubbles, frequently lengthened in the direction of the vein, ſeem likewiſe to prove the ſame.

M. Dolomieu, who firſt ſuggeſted that many pumices have flowed in currents like lavas, obſerved that at Campo Bianco the lighter pumices lie above the heavier; in the ſame manner as in the common currents of lava the porous lavas occupy the higheſt place.

place. I have certainly obſerved this diſpoſition; but ſometimes it proves fallacious: for if the excavation be continued below the vein which forms the ſecond ſpecies of pumice, we frequently again find maſſes of extremely light and pulverulent pumice.

The firſt action of the fire of the furnace thickens the ſides of the vitreous veſicles, of the ſecond ſpecies, and diminiſhes the internal pores. A longer continued heat entirely annihilates the pores, and changes the pumice into a fixed, obſcure, homogeneous, and hard glaſs, which gives ſparks plentifully with ſteel.

The third ſpecies is likewiſe an object of traffic with the natives of the iſland, who dig it in the ſame places where they find the ſecond; and, in like manner, ſhape it into parallelopipedons. This is likewiſe an aggregate of bubbles, but differing from thoſe of the former in ſeveral reſpects. Thoſe, as we have ſeen, are conglutinated together in ſome points, while they are ſeparated in others, ſo that we can frequently detach them without breaking; while theſe, on the contrary, are ſo incorporated by different ſolid points, that if we attempt the ſeparation of one, we break the others that are contiguous. Here the elaſtic gaſes, inveſting the pumaceous ſubſtance in ſeveral points, have expanded it in every part into tumours and cavities, nearly as we ſee in raiſed and baked paſte. It is worthy remark, that frequently when we break one veſicle, we meet with another within it, and concentrical. There is likewiſe another difference between theſe two pumices. The veſicles of the ſecond ſpecies are all more or leſs vitrified; but many of the third ſhew no ſigns of vitrification, are extremely friable, and of a pale red colour.

This pumice, though deſtitute of any fibrous texture, is ſpecifically lighter than water. To obtain it, large pieces of white pumice, of the firſt ſpecies, in which it is enveloped, muſt be removed; and it commonly lies in long tracts, in the direction of which its veſicles are ſometimes lengthened, which may induce us to ſuſpect that this likewiſe, when it was liquid, formed ſmall currents. It contains no extraneous bodies.

In the furnace it condenſes into an obſcure maſs of glaſs, almoſt opake, but little porous, and ſufficiently hard to give ſparks with ſteel.

Theſe are the three kinds of pumice which the people of Lipari dig for ſale. The firſt is employed in poliſhing different ſubſtances, and the other two are uſed in the conſtruction of arched vaults, and the corners of buildings. There are, however, other ſpecies which deſerve the attention of the naturaliſt, and which I ſhall here proceed to deſcribe.

On Campo Bianco, and in its environs, we find a fourth ſpecies of pumice, of a filamentous and extremely black texture. It is rough to the touch, ſcarcely at all porous, ſo heavy as to ſink in water, and gives ſparks moderately with ſteel. This pumice likewiſe contains no extraneous ſubſtances. Though when viewed in the maſs it appears entirely opake; its filaments when detached, and examined by a ſtrong light, appear to be tranſparent, and only dark from their black colour. The ſecond and third ſpecies are veſicular; but in this there are not any veſicles. The threads or filaments of which this fourth ſpecies is compoſed have all one direction, which is that of the current. It is here neceſſary to obſerve, that though this black pumice is found ſcattered on the ſides of Campo Bianco, in a rock which deſcends almoſt perpendicularly into the ſea, it forms an entire vein almoſt horizontal, which enlarges from the breadth of ſeven feet to twelve, and is above ſixty feet in length. If we here examine the ſtructure of this pumice, we ſhall find that, beſides being filamentous, as we have before deſcribed it, its filaments preſerve a parallelifm among themſelves, and the direction of them all is from the mountain to the ſea; there can therefore be no doubt but this vein may be conſidered as a true current of pumice.

I was

I was at firſt inclined to believe that the black colour of this pumice proceeded from iron, but afterwards ſuſpected that it was rather the effect of a bituminous ſubſtance, from the ſtrong ſcent of bitumen which it emitted on rubbing two pieces of it together; and my ſuſpicion was afterwards confirmed by its loſing its black, and acquiring a white colour, by remaining a ſhort time in the furnace: on a longer continuance it became a vitreous paſte.

But among the different productions of this nature, there is none which more merits attention than that of which I now proceed to ſpeak, and from which originate no ſmall part of the pumices of Campo Bianco. This is a lava, with a feltſpar baſe, which is found over the whole mountain and its environs, riſing in rocks and crags of an enormous ſize. It is of a grey colour, of an appearance between ſiliceous and vitreous, with a conſiſtence or grain leſs fine than that of quartz, having a ſmall degree of tranſparency in the angles, and ſufficient hardneſs to give ſparks with ſteel. On attentively examining this lava, we may diſtinctly perceive in it the gradual tranſition of the lava into pumice. In many pieces of it we find the external appearances above deſcribed. In others the lava begins to ſoften, and become friable and rough to the touch, but without loſing its ſiliceous-vitreous appearance. In many others we diſcover the commencement of the pumiceous character. Some ſmall cavities in this lava exhibit minute groups of fibres, of a ſilvery whiteneſs, light, extremely friable, but only diſcernible by the lens. Theſe crackle between the teeth, and rub to powder under the finger; but, at the ſame time, ſhew they have a rough grain, and, in a word, prove, by the moſt indubitable marks, that they are real pumice. On breaking other pieces, the groups or cluſters of fibres are found more fixed and large, ſo as to occupy a great part of the lava, which becomes lighter even where there are none of theſe cluſters, ſince its texture becomes thinner, though not at all porous; and here the nail only is ſufficient to ſcratch and break them, and the eye accuſtomed to pumices recognizes the characteriſtic marks of that ſubſtance, though they are not ſo apparent as in the filamentous aggregates. Laſtly, it is not uncommon to find maſſes of lava, which on one ſide retain the characters of feltſpar, and on the other are changed into the firſt ſpecies of pumice, entirely reſembling it in colour, lightneſs, ſtructure, and its other exterior characters. In this pumice we likewiſe perceive many cryſtallized feltſpars, ſuch as we find them in the generative lava, and ſeemingly not at all injured by the fire.

We thus clearly diſcover the origin of the firſt deſcribed ſpecies of pumice. I muſt here remark likewiſe, that theſe maſſes of lava, even where they do not appear pumiceous, if they are triturated and pulverized, produce a powder reſembling in every reſpect, the whiteneſs of its colour not excepted, that which in immenſe quantities covers, and lies deep in the mountains, and which is produced from the pumices of the firſt ſpecies. The furnace reduces this pumice to a kind of glaſs, reſembling that obtained from the firſt ſpecies.

All theſe circumſtances concur to prove the identity of this pumice derived from the feltſpar, with that firſt deſcribed. I ſhall only obſerve, that if the greater part of this kind of pumice has not formed currents, but been thrown out at different times in detached pieces from the volcanic furnace, as has been before remarked, another portion has actually flowed; that, for inſtance, which in many parts of Campo Bianco is united to the feltſpathoſe lava.

This lava, however, merits to be conſidered in another point of view. Hitherto we have only noticed it as the original baſe of pumice, but we ſhall likewiſe find it productive of glaſs. To be convinced of this, we have only to examine ſome other pieces from the ſame mountain; ſome of which, without loſing the appearance of the feltſpar, begin

to aſſume the veins of glaſs, and are at the ſame time filled with innumerable ſmall bubbles, that are likewiſe vitreous. But this glaſs differs from that of the pumices by being more perfect, and more tranſparent. In other pieces the bubbles are larger, and the ſmall vitreous veins more numerous. On breaking a large maſs, or following the large veins, we find in ſome parts groups of feltſpathoſe lava, in others pieces of veſicular glaſs, and in others ſolid glaſs.

But whence has it happened that the ſame rock in ſome places has been changed into pumice, and in others has become glaſs? ſince, though the greater part of pumices are vitreous, their glaſs is far from being ſo perfect as that in queſtion; which likewiſe differs from the pumices in this, that though it forms veſicular maſſes, theſe maſſes have a hardneſs that can never be compared with the uſual friability of pumices.

The origin of this difference, it appears to me, may be explained as follows: a certain degree of heat has produced a ſemi-vitrification in the feltſpar, which has changed it into pumice. Such a degree of heat therefore was only ſufficient for the production of this ſtone; but a ſtronger, or perhaps a longer continued heat, has produced a complete fuſion, that is, a perfect glaſs, ſometimes abounding in bubbles, from the abundance of the gaſeous ſubſtances with which it is penetrated.

Seven varieties of theſe cellular glaſſes, which are all of a cinereous colour, having been expoſed for ſeveral hours to the furnace, on their re-fuſion, were reduced in volume, and the new glaſs was conſequently deprived of that multitude of pores it before contained.

But to return to the pumices: we have now aſcertained that there are four ſpecies, of which Campo Bianco and its environs are principally compoſed.

It may perhaps be objected, that the ſecond and third ſpecies which I have deſcribed, do not properly belong to the claſs of pumices, as they are both veſicular; whereas one of the characters of the pumice is the filamentous texture.

I admit without heſitation, that many pumices uſed by artiſts to poliſh different ſubſtances have this character; but others, employed for the ſame purpoſes, and perhaps in equal quantities, and which no perſon has ever doubted to be pumices, have no ſenſible trace of filaments. Of this every one may convince himſelf by an inſpection of the pumices uſually ſold. Beſides, even thoſe that are filamentous do not conſtantly retain that character; of which the firſt ſpecies furniſhes numerous examples. Of this, large maſſes are found on the ſhore, cut by the natives into pieces for ſale; among which I have obſerved that, though many pieces have the filamentous texture, there are many others which have it not, either externally or internally. The ſame I obſerved in many of the ſcattered pieces with which the mountain abounds. If, therefore, the filamentous texture be not a character eſſential to the pumice, I do not ſee why the ſtones of the ſecond and third ſpecies ſhould not be conſidered as true pumices, ſince they bear all the other marks by which the pumice is characterized. It may be added, that at Lipari, and in commerce, they are denominated pumices, and names adopted by the arts ought not to be changed without abſolute neceſſity.

From theſe obſervations, made at Campo Bianco, we begin to obtain ſome light relative to the origin of pumices, ſince we have ſeen that thoſe of the firſt and fifth ſpecies have the feltſpar for their baſe. The ſame has likewiſe been ſhewn of the others contained in the rock on which the caſtle of Lipari is built. We ſtill, however, remain in uncertainty with reſpect to the ſecond, third, and fourth ſpecies, from their being always found in the ſtate of complete pumice, and never met with in thoſe ſtrata or maſſes of lava, which, by ſhewing the firſt principles of theſe pumices, might enable us to diſcover the ſtone from which they have originated. To attain this diſcovery, it was therefore

neceſſary to analyze theſe three ſpecies by the humid method; and though the baſe of the firſt and fifth ſpecies, as alſo of that from the rock of the caſtle of Lipari, was ſufficiently evident; I yet, for the greater certainty, reſolved to ſubject theſe likewiſe to the ſame analyſis; and, while employed on this operation, determined at the ſame time to make ſimilar experiments on ſome pumices of other countries; that, for inſtance, which is found in ſmall quantities in the Arſo in the iſland of Iſchia, and two other kinds from the iſland of Santorine in the Archipelago, a country certainly volcanic. Both the latter ſpecies are white, and float in water; but the texture of the one is compact and equable, and that of the other full of pores, and extremely filamentous.

The following are the reſults I obtained:

Firſt Species of Campo Bianco.

Silex	60.3
Alumine	23
Magneſia	6
Lime	6
Iron	3

Second Species.

Silex	80
Alumine	6
Magneſia	3
Lime	4.7
Iron	4.8

Third Species.

Silex	80
Alumine	4
Magneſia	2
Lime	4
Iron	5.3

Fourth Species.

Silex	84.5
Alumine	4
Magneſia	3
Lime	2.1
Iron	4.2

As this fourth ſpecies emitted a bituminous odour; before I analyzed it, I ſubjected it to diſtillation, in a ſand heat; from which I obtained a few drops of petroleum that ſwam on the water which had collected during the operation in the recipient of the retort containing the pulverized pumice.

Fifth Species.

Silex	61
Alumine	22.7
Magneſia	6
Lime	5.8
Iron	3

Pumice of the Rock of the Caſtle of Lipari.

Silex	63
Alumine	24
Magneſia	5.6
Lime	3
Iron	2

Pumice of the Arſo in Iſchia.

Silex	54
Alumine	26
Lime	3
Magneſia	8.2
Iron	7

Firſt Pumice of Santorine.

Silex	66.8
Alumine	4.2
Magneſia	14.7
Lime	11
Iron	3

Second Pumice of Santorine.

Silex	69
Alumine	3
Magneſia	19
Lime	6
Iron	2

From theſe reſults it appears that the component principles of the firſt and fifth ſpecies of pumices of Campo Bianco, as alſo that of the rock of the Caſtle of Lipari, perfectly reſemble thoſe obtained by the analyſis of various feltſpars made by different chemiſts; among others, by Mayer, Fabroni, Heyer, Weſtrumb, and Morell.

The ſame agreement would be found in the ſecond, third, and fourth ſpecies, were it not that they contain a greater quantity of ſilex, and leſs of alumine; which, however, does not appear to be a ſufficient reaſon for excluding the feltſpar from theſe three pumices; both becauſe I know no other ſtone hitherto diſcovered, and chemically analyzed, to which theſe component principles can be more properly referred than to the feltſpar; and becauſe, the ſpecies of that ſtone being extremely numerous, it cannot excite ſurpriſe if ſome ſhould differ a little from others, in the quantities of their conſtituent parts, which is the caſe in every kind of ſtone.

With reſpect to the pumice of the Arſo in Iſchia, it appears evident from its component principles, that its baſe is a horn-ſtone, from which the current of lava likewiſe derives its origin.

Laſtly, with regard to the two ſpecies of pumices from the volcanic iſle of Santorine, it appears, from the analyſes adduced, that their baſe has been an aſbeſtus, or at leaſt ſome ſtone analogous to the aſbeſtus: of this we ſhall be convinced, if we compare theſe two analyſes with thoſe made by Bergman of different kinds of the aſbeſtus *.

* Opuſc. Phyſ. Chem. tom. iv.

If we now proceed to conſider the various opinions relative to the origin of pumices, and examine them by the facts now ſtated, we ſhall certainly find that the hypotheſis of the Swediſh chemiſt, as alſo of Pott and Demeſte, that pumices originate from the aſbeſtus, is not without foundation; it is only erroneous in ſuppoſing that they are produced from that excluſively; ſince it has been ſhewn, that the baſe of the pumices of Campo Bianco, and the rock of the Caſtle of Lipari is a feltſpar, and that of the pumices of the Arſo is a horn-ſtone.

I foreſee that ſome will with difficulty be perſuaded, that the pumices of any volcanoes have for their baſe either the aſbeſtus or the amianthus, ſince theſe two magneſian ſtones are rare, and only found in ſmall quantities. But this is a miſtake; for we know, from the information of naturaliſts and travellers, that they are both found in many countries; as in the iſlands of the Archipelago, in Aſia, in Perſia, and Tartary, not to mention Savoy, Switzerland, and Italy. It is likewiſe certain that the aſbeſtus is found in ſome countries in ſuch abundance that whole rocks are entirely compoſed of it, as in Siberia. I have ſome large pieces of aſbeſtus, with parallel fibres, of a greeniſh grey, and difficult to ſeparate, which were brought to me a few years ago by one of my pupils from Chiavenna, in the country of the Griſons, and taken by himſelf from Mount Uſchione, near his native place, which is full of this ſpecies of ſtone.

When we ſpeak of pumices with an aſbeſtine or amianthine baſe, it is always to be underſtood that the volcanic fire which has produced them has been exceſſively powerful; ſince we know, from the experiments of D'Arcet, Sauſſure, and Ehrmann, how obſtinately theſe ſtones reſiſt the fire of the furnace when raiſed to an exceſſive degree of heat. The aſbeſtus of Chiavenna, the Genoeſe territory, Savoy, Corſica, and other countries of Europe, after I had kept them a long time in a glaſs furnace, ſtill continued refractory, having only loſt their yielding conſiſtence, and their flexibility.

From the great affinity between ſome ſerpentines and the aſbeſtus, I cannot heſitate to believe, that ſhould the furnace of a volcano be ſituated among the former, they would likewiſe be converted into pumice.

I cannot, however, by any means, ſubſcribe to the opinion of Wallerius, that pumices are coal or ſchiſtus calcined; nor to that of M. Sage, that they are margaceous ſcoriæ; for, with reſpect to the former, we have ſeen that pumices are not in a ſtate of calcination, but of vitrification; and with regard to the latter, inſpection alone is ſufficient to ſhew the eſſential difference between pumices and ſcoriæ.

It now remains to ſay a word of the opinion of M. Dolomieu, who ſuppoſes pumices to originate from granite. This naturaliſt having examined with the greateſt attention the pumices found in the places which I afterwards viſited, eſpecially thoſe that had undergone the leaſt alteration from the fire, ſince theſe are moſt likely to preſerve ſome characters of their primitive baſe, made the following obſervations:

Firſt, he found in ſome a reſidue of ordinary granite, that is, quartz, mica, and feltſpar; and remarked that theſe three ſubſtances, which, according to him, ſerve interchangeably as a flux one to the other, had acquired, by the action of the fire, a ſpecies of vitrification of a middle nature between that of enamel and that of porcelain, and which might be compared to that of a fritt, ſomewhat inflated.

Secondly, he obſerved, that they gradually aſſume the fibrous and porous texture, and the other qualities of pumice; whence he concluded that the granite and granitous ſchiſtus are the primitive ſubſtances, which, by the action of the volcanic fire, paſs into the ſtate of pumice.

On my firſt arrival at the mountain of pumices, I was, as may be ſuppoſed, deſirous to aſcertain the truth of this diſcovery; and not being ſucceſsful the firſt time, I returned

again

again another day; and this ſecond viſit proving as little-ſatisfactory as the former, I made two others, but with the ſame ill ſucceſs. I examined with the greateſt care every corner of Campo Bianco, and every other part of Lipari where pumices are to be found; and as it was only neceſſary to have eyes to diſcover immediately theſe granitous rocks, changed more or leſs into pumices by the action of the fire, had they exiſted; I ſhall ſay, with the freedom of a philoſopher, that I was frequently tempted to believe that none were any longer to be found here, becauſe they had all been carried away by the French naturaliſt.

I do not, however, mean abſolutely to deny the truth of this diſcovery (and indeed how can it be doubted, when M. Dolomieu aſſerts that he has ſent to ſeveral men of learning ſpecimens of theſe granites, which have gradually paſſed into the ſtate of pumice). It is conſequently proved that pumices, beſides having for their baſe the horn-ſtone, the aſbeſtus, and the feltſpar, likewiſe originate from the common granite. We may likewiſe add the petroſilex, ſince the pumices formerly ejected from Stromboli derive their origin from that ſtone *; and if naturaliſts were to examine the pumices of other countries, and to their local obſervations join chemical analyſis, it would perhaps not be difficult to find pumices which originate from other kinds of ſtone.

As to the pumices with a granitous baſe, it is obvious to remark that the ſubterraneous fire which produced them muſt have been extremely violent, ſince ſuch muſt be that of our furnaces to reduce the granite compoſed of feltſpar, mica, and quartz, to a homogeneous conſiſtence, ſimilar to that of perfect pumices. Sufficient proofs of this aſſertion may be found in Chap. XII.

Proceeding from Campo Bianco by ſea, and coaſting the baſe of the mountain, we find the ſide lying on the left, and which is in like manner compoſed entirely of pumices, full of furrows and channels that take their direction to the ſea. Other leſſer mountains, which are white, becauſe they are likewiſe formed of pumices, join the principal one, Campo Bianco. Beyond theſe riſes a mountain of another kind, called the Monte della Caſtagna, which, in the part of it deſcending to the ſea, is about a mile in extent, and in its circumference exceeds four miles. But who would believe that this mountain is entirely compoſed of enamels and glaſſes? Before I had read the excellent work of the Chevalier Dolomieu, I knew that Lipari abounds in vitrifications, and the reading of this book confirmed me ſtill more in the idea; but I was entirely ignorant that they were accumulated in ſuch immenſe quantities in one place as to form an entire mountain; and I feel ſome pleaſure in being the firſt perſon who has announced to the world ſo extraordinary a circumſtance. I ſhall proceed, therefore, to conſider theſe products; firſt, as they appear on the ſpot, and afterwards divide them into their ſpecies and principal varieties.

I know not to what a tract of theſe vitrified ſubſtances can be more properly compared, than to a large river, which, breaking into a thouſand ſtreams, daſhes from height to height down a ſteep precipice, and, ſuddenly congealed by exceſſive cold, freezes, breaking every where into clefts and fiſſures, ſo that the precipice appears covered with a rough wavy ice, divided into large flakes. Such is the appearance of ſome of theſe vitrifications on the back of the Monte della Caſtagna; but ſeen from the ſhore they have a different aſpect. In the places where the waves of the ſea have produced deep excavations, we perceive that under this vitreous ſtratum, divided into flakes or plates, there are other ſtrata, and beneath them others, all equally vitreous, but differing in colour, conſiſtence, and direction. Beneath theſe there may likewiſe poſſibly be others

* See Chap. XI.

concealed

concealed from the eye by thoſe above them. The thickneſs of theſe ſtrata is different; that of the uppermoſt in ſome places is not more than a foot and a half, but in others twelve feet. As it is higher than the others, it has not ſuffered ſo much from the daſhing of the waves, except in its loweſt parts. The higher have flowed over the rock, taking from it their configuration. Theſe vitreous bodies, having in them numerous fiſſures and clefts, are eaſily broken by the beating of the waves, and detached pieces of them are therefore found in great quantities on the ſhore and under the water, but more or leſs rounded by the daſhing of the ſea, and entirely reſembling thoſe ſmooth irregular ſtones which form the beds of the rivers.

I ſhall now proceed to deſcribe the different qualities of the vitrified ſubſtances that compoſe the Monte della Caſtagna; in which deſcription it will be impoſſible to be very brief, on account of the numerous varieties of thoſe ſubſtances, and the diſtinct attention which each juſtly claims.

I. And ſince the nature and quality of pumices was the laſt ſubject that engaged our attention, I ſhall begin with a ſubſtance which may be conſidered as the point of tranſition of theſe bodies into glaſs. Not that it is not a true glaſs; but it is ſo light, that, like many pumices, it will ſwim in water, and poſſeſſes that fragility which always accompanies pumices. Hence it eaſily ſhivers when ſtruck againſt ſteel, and rarely emits ſparks. It has beſides, in more than one part, ſmall pores, interrupted by vitreous threads, which is obſervable in many of theſe kind of ſtones. The vitrification is more advanced than in the pumices. The glaſs is of a whitiſh-grey, tranſparent, in part ſcaly, and in part involuted and contorted, from the number of pores which interrupt the direction of the ſtructure. It is found in detached pieces on the ſides of the mountain; and ſome float in the ſea, the ſport of the waves.

II. This ſecond glaſs reſembles the former in more than one quality; but it is ſomewhat more heavy, and what I ſhould call reticulated, as it contains ſmall eyes, or ſpots, which give it the appearance of a net. It is found in ſtrata above ſtrata, and the face of every ſtratum is covered with an earthy and half-pulverous coating, in conſequence of which coating it eaſily ſplits.

III. Capillary glaſs, or glaſs reduced by fuſion to the fineneſs of a hair, is ſo rare in volcanized countries, that only four ſpecimens of it are known to thoſe who have moſt diligently examined the productions of ſubterranean fires. The firſt of theſe was produced by an eruption in the Iſle of Bourbon in 1766, the ſecond by Veſuvius in 1779, the third by Vulcano in 1774, and diſcovered by the Chevalier Dolomieu; and the fourth noticed by M. Faujas, who in the cavity of a baſaltic lava, brought by Beſſon from the volcanic caves of St. Sebaſtian at Rome, obſerved a great number of capillary filaments from three to four lines in length, of a tranſparent and vitreous ſubſtance.

The Monte della Caſtagna at Lipari furniſhes a great quantity of this capillary glaſs, which I ſhall conſider as the third ſpecies of the ſubſtances that now claim our attention. Several of theſe glaſſes, which have a very thin texture, and are conſequently very light, if they are examined internally, uſually abound with cracks, ſometimes extending from one end to the other of the pieces; and when ſtruck in the direction of theſe they are eaſily ſplit. In theſe vacuities, the glaſs is extremely ſmall and thin; in many places as fine as a hair, and forms minute entangled filaments, reſembling the fineſt wool, or thin threads tending all the ſame way. Some of the latter are ſo fine, that only breathing on them will put them in motion, and break them. They are tranſparent, and have a luſtre like ſilver. Many of them are two inches long; and beſides thoſe which are viſible to the naked eye, there are others in great numbers which are only diſcoverable by the lens. The nature of their formation does not appear to me difficult to explain,

as

as it probably is to be attributed to the viſcoſity of the glaſs when in a liquid ſtate, and the diſtenſion which took place from the enlargement of the apertures by congelation.

Theſe thick groups of vitreous threads, when viewed by the leſs experienced obſerver, might lead him to believe that they are a ſpecies of extremely fine pumice; but a moment's attentive obſervation will be ſufficient to diſcover the difference, which, as it is eſſential, I ſhall here ſtate.

One of the ſenſible characters of pumices, at leaſt of the greater part, is their being vitreous; but their vitrification is always in ſome degree leſs than that of the true volcanic glaſs. The filaments, however, of which I have juſt ſpoken, are entirely vitreous. In fact, they have the tranſparency of glaſs, and are ſmooth to the touch like that; whereas thoſe of pumices are almoſt opake, and rough to the touch. The latter may be ſafely preſſed with the finger; but the former, though thicker, enter the ſkin, and draw blood, as may be expected from the points and ſharp edges of glaſs. It is true, many pumices have their original baſe the ſame with the volcanic glaſſes; but the action of the fire has not been the ſame on both, but on the glaſs has either been ſtronger or longer continued.

Though this ſeems ſo clear in itſelf as to need no proof, I ſhall yet produce one which is extremely obvious on the compariſon of ſome light filamentous pumices of Campo Bianco and the preſent glaſs. Both theſe bodies contain cryſtallized feltſpars of the ſame ſpecies, which in the pumices appear to have ſuffered no injury from the fire, as they retain their changeable luſtre, their laminated ſtructure, their natural tranſparency and hardneſs. On the contrary, in the glaſs in which we find theſe capillary filaments, though they have not undergone fuſion, they are ſo changed that they have loſt all the characters above mentioned; and when touched with the finger, fall into ſmall pieces, the larger only retaining a kind of central point of the original nature of the ſtone. I have in my poſſeſſion one of theſe feltſpars, which preſents a curious appearance. It is placed within one of theſe apertures, but without touching the ſides, and is, as it were, ſuſtained in the air by a crown of capillary threads of glaſs that are attached to it at one extremity, and at the other faſtened to the ſides of the aperture. The feltſpar muſt no doubt have been originally confined in the glaſs when it was fluid; but this drawing back at the time of its congelation formed the cavity, and left the feltſpar as it were iſolated, and communicating only with that part of the capillary down, which is a part of the glaſs itſelf reduced to threads by the retiring of the ſides of the cavity. This feltſpar, which is four lines in length, and three in breadth, is changed equally with the reſt by the fire.

From the facts now adduced, it is evident that the fire which produced theſe pumices was leſs powerful in its effects than that from which the glaſs derives its origin; it is not, therefore, ſurpriſing that the latter ſhould be more perfect than the former.

I have entered into theſe minute details relative to pumices and glaſſes, becauſe it appears to me that the modifications and gradations viſible in the operations of nature deſerve the moſt careful attention of the philoſopher, as, otherwiſe by conſidering things too generally, we ſhould incur the danger of confounding objects very different in themſelves; as for inſtance, not to wander from our ſubject, ſince pumices, enamels, and glaſſes are vitrified ſubſtances, we might confound them together, and even not diſtinguiſh them from lavas; and, in fact, there have not been wanting eminent writers who have characterized theſe alſo as true vitrifications.

This remark leads me to make a few ſtrictures on an opinion of M. Dolomieu; who having obſerved that pumice ſometimes changes into glaſs, imagined that this glaſs, by an inflation of the internal air, might paſs into the ſtate of pumice. The former I readily admit, having adduced more than one example of it in volcanic products, not

to mention artificial fuſions in which I have always obſerved this tranſition of pumices into glaſſes or enamels, which is, beſides, extremely natural; the ſtone thus paſſing, by the action of a ſtrong heat, from a leſs degree of vitrification to a greater. I find it, however, very difficult to aſſent to the latter hypotheſis, as, in that caſe, we muſt ſuppoſe that a greater or more perfect vitrification may paſs into one leſs perfect, which is certainly very unnatural; ſince glaſs re-melted by volcanic fire will remain in its former condition; and ſuppoſing it ſhould be inflated with aëriform gaſes from ſolid glaſs, which it was before, it will become veſicular, but never, in my opinion, can it become pumice, ſince it cannot return to that feeble degree of vitrification which characterizes that ſtone. Neither are gaſes an eſſential requiſite in the formation of pumices, ſeveral kinds of which are compact, and do not ſhew the ſlighteſt indication of theſe elaſtic fluids: beſides, many glaſſes already mentioned, and others hereafter to be enumerated, ſhew, by the bubbles with which they abound, that they have every where been penetrated by theſe fluids, without having the leaſt appearance of pumice.

IV. The glaſſes of the Monte della Caſtagna which we have hitherto conſidered, are thoſe that have a texture more or leſs porous; we will now proceed to thoſe of a compact ſtructure, of which kind is the fourth ſpecies, which may be ſaid to compoſe nearly one half of the mountain. This glaſs, if viewed ſuperficially, and as it is found on the ſpot, has rather the appearance of a red earth than a glaſs, occaſioned by a red earthy coating that inveſts the glaſs diſpoſed under it in immenſe plates; which covering, though in many places it but feebly adheres to it, ſince it may be removed by ſimply waſhing with water, in others is ſo cloſely united that it forms the laſt rind or outermoſt part of the glaſs, which induces me to believe that it is a ſuperficial decompoſition of it. Beneath this earthy coating the glaſs appears, which is extremely perfect, and as if it had juſt come out of the volcano. If we except a few pieces in which its ſtructure is ſpongy, it is extremely compact and ſolid, and therefore much heavier than either of the other three kinds. It is of an olive-colour, and tranſparent when in thin ſcales, examined by a bright light, but in the maſs it appears opake. It gives ſparks rather plentifully with ſteel. Pieces of perfect glaſs, it is well known, when broken, have their fractures ſtriated, waving and cured. In this glaſs ſome of the fractures are the ſame; but in general they are conchoids, like thoſe of flints. Its conſiſtence is not perfectly homogeneous, as it contains many feltſpathoſe points. Its aſpect is not lively and brilliant, like that of glaſs, but ſomewhat unctuous and dull, from all theſe qualities this product appears to be more properly an enamel than a glaſs; unleſs we are willing to conſider it as one of thoſe volcanic bodies which conſtitute the middle ſubſtance between enamels and glaſſes.

In my deſcription of the glaſſes of Lipari, I have obſerved that ſeveral of them are interſected with veins or earthy leaves, by means of which they are eaſily divided into plates. The ſame is obſervable in the preſent glaſs, in which we find the ſame quality as in ſome marbles, which being cut in the vein may be divided, without any great labour, into large ſlabs, but which break into ſmall pieces if it be attempted to divide them in any other manner. Some of the workmen who dig the pumices, and were very uſeful companions to me in my excurſions to Campo Bianco and the Monte della Caſtagna, at my requeſt, drove with heavy hammers, an iron wedge into theſe earthy veins and extracted from the common maſs of this glaſs large plates five feet long, three broad, and two in thickneſs. To the ſurface of each plate was attached a coating of hard earthy matter, which ſtill more confirmed me in the opinion I have already given, that this matter had reſiſted fuſion, and, being lighter than the fluid glaſs, had aſcended to the

ſurface; a conjecture further corroborated by the artificial fuſion which I made of this glaſs retaining ſome portion of this earth, which with difficulty fuſed, though the glaſs was inflated and changed into a frothy enamel.

This glaſs ſlightly cuts the factitious glaſs; and if the cutting angle of one piece is driven with force along the ſurface of another, it produces a white and impalpable powder

V. This ſpecies of glaſs completely deſerves that appellation, ſince it is not only the moſt perfect of all the volcanic glaſſes of the Eolian iſles, but does not in the leaſt reſpect yield to what is called the Iceland agate, or the gallinaceous ſtone of Peru, which is ſuppoſed to have been the obſidian ſtone of the ancients. In the large pieces its colour is extremely black, and it is entirely opake, but the thin leaves are white and tranſparent. The opacity and blackneſs may be ſaid to be in the direct ratio of the thickneſs. This glaſs, which is extremely compact, is free from aëriform bubbles, and from every kind of heterogeneouſneſs. It is ſomewhat harder than the fourth ſpecies, and therefore cuts factitious glaſs more eaſily, and gives more ſparks with ſteel. Its edges are ſharp and cutting.

M. Faujas, having obtained ſome ſpecimens of the beſt glaſs of Lipari, has made ſome obſervations on it proper to be given here. He admits that this ſpecies is the ſame with that of Iceland; but he remarks, however, that it differs from it in the poliſh, which appeared to him more unctuous and leſs vitreous, beſides that in the fractures it had not that waving, ſtriated, ſcaly appearance, which is proper to the maſſes of true glaſs.

It muſt be remembered, however, that the ſpecimens of M. Faujas were none of the beſt: the pieces, at leaſt, which I collected, took ſo exquiſite a poliſh and luſtre, that I do not believe any kind of artificial glaſs ever received one more beautiful and brilliant. This glaſs, beſides, when in the maſs, being opake, became a true mirror; and I therefore find no difficulty in believing that the ancient Peruvians uſed a ſimilar kind of glaſs, cut and poliſhed, for mirrors. This glaſs, likewiſe, could not be broken without exhibiting the undulating ſcales, lightly ſtriated, which the French Vulcaniſt affirms he could not find in his ſpecimens. While I now write, I have before me a piece with a recent fracture, in which theſe waves are circular and concentrical, occupying an area of two inches and a half, the common centre of which is the point that received the blow: they reſemble in ſome manner thoſe waves which a ſtone produces round it when it falls perpendicularly into a ſtanding water.

I cannot omit another remark. M. Faujas ſays, that the edges of this glaſs where they are very thin, if preſented to a ſtrong light, are a little tranſparent. The tranſparency of the thinneſt parts of the glaſs on which I made my obſervations, when compared to that of common factitious glaſs, is certainly not equal to it: it is not, however, ſo much inferior as this naturaliſt ſeems to ſuppoſe. A ſcale three lines and a half in thickneſs being preſented to the flame of a candle afforded, in part, a paſſage to the light; and another, two lines thick, being interpoſed between the eye and external objects, permitted a confuſed ſight of them. Another, half a line in thickneſs, being laid on a book, it might be read with the greateſt diſtinctneſs. I have entered into theſe minute details the better to ſhew the perfect quality of this glaſs.

The opacity of this glaſs in the maſs proceeds from a very ſubtile, and, perhaps, bituminous ſubſtance, incorporated with the vitreous matter, and rendering it dark like a cloud. The glaſs loſes this ſubſtance if it be left for ſome hours re-melted in the crucible, and it then becomes white.

Bergman obſerved that the Iſlandic glaſs, when expoſed to the fire, melts with difficulty, without the addition of ſome other ſubſtance as a flux. In this it differs from the

the preſent of Lipari, which ſoon begins to ſoften in the furnace, and in a few hours undergoes a complete fuſion.

This kind of glaſs, however, is not the moſt common to be met with on the Monte della Caſtagna. It is found only in a few places, ſcattered in large but ſolitary maſſes; nor can I pretend to ſay, whether theſe are remains of currents, or whether they were thrown out by the burning gulphs.

It happens to this glaſs as to the different kinds of precious ſtones, that is, that the ſame piece is not always throughout of equal purity and value; for, on breaking ſome of theſe maſſes, we ſometimes find one portion very pure glaſs, ſuch as has been already deſcribed, and the other imperfect; either becauſe the fuſion has not been general, the ſubſtance containing bodies foreign to the baſe, or becauſe that baſe is rather an enamel than vitreous. Theſe bodies are feltſpars, but of a new appearance. Nothing is more common than to find feltſpars in lavas, and ſometimes even in enamels and glaſſes; of which we have frequent examples in this work, as well as in the accounts of other writers. But theſe feltſpars are always inſerted immediately into theſe ſubſtances without any intervening body. Here, however, the caſe is different: every feltſpar is ſurrounded with a rind or coating, which, when it is extracted entire from the enamel, appears to be a vitreous globule, about one or two lines in diameter, of a clear cinereous colour. If we break this globule, we find within it the half-fuſed feltſpar, not diveſted of its coating, but forming one body with it. Theſe globules are very numerous, and ſometimes by their confluence form groups; and they are very diſtinctly viſible, on account of the black colour of the enamel.

The manner in which this coating was formed around the feltſpars I conceive to be as follows: when the enamel was fluid and incloſed the feltſpars, it acted as a flux to their external parts, and combined with them; and from this combination was the rind or coating produced, while the internal part of the feltſpars had only undergone a ſemi-fuſion, becauſe it was not in immediate contact with the enamel. There can be little doubt but that the feltſpars likewiſe exiſted in the perfect glaſs; but the heat probably being more active in that than in the enamel, they were completely diſſolved, and the entire maſs reduced to one ſimilar conſiſtence. As a proof of this conjecture, the furnace produced a complete homogeneity of parts in the enamel containing theſe extraneous globules.

VI. When treating of the rocks of the caſtle of Lipari, I ſaid they were formed of a cinereous lava of a feltſpar baſe, which in many places has paſſed into glaſs. I likewiſe remarked that the lava, as well as the large pieces of glaſs, was filled with globules apparently not diſſimilar to the baſe. At the beginning of the Monte della Caſtagna, not far from a cottage, the habitation of one of the labourers who dig pumice, there is a current of ſimilar glaſs that falls into the ſea in ſeveral branches, and which I ſhall here conſider as the ſixth ſpecies. This glaſs however has a more fine and ſhining grain, and its fracture is exactly ſuch as we obſerve in glaſs, yet in beauty it is little inferior to the fifth kind; and if whiteneſs, or more properly the want of colour, is particularly valuable in volcanic glaſſes, (ſince thoſe which have this quality are extremely rare,) this certainly has conſiderable claim to our attention. Not that it is entirely colourleſs, as it contains a kind of obſcure cloud, which gives it, when viewed in the maſs, a blackiſh hue, but at the edges it appears white. The round cinereous bodies with which it is filled, form the moſt pleaſing and conſpicuous contraſt, and render the glaſs irregularly ſpotted. I have large pieces of the fifth ſort cut and poliſhed. Their colour, which is that of pitch, gives them a peculiar beauty. The blackeſt and choiceſt marbles of Varena and Verona are far inferior to them in fineneſs of grain and luſtre; yet, from

their uniformity of colour, they are leſs beautiful than this ſpotted glaſs, when it has received a delicate poliſh from the hands of the artiſt. On the ſhore, where the torrent fell into the ſea, we find pieces of all ſizes rounded and ſmoothed by the continual agitation of the ſea; I have met with more than one of half a foot and a foot in diameter. Notwithſtanding the powerful action of the waves which have beaten on them for ſo long a time, their internal parts are not injured, and, when cut and poliſhed, they preſent ſurfaces very beautiful to the eye. Tablets of this kind of glaſs (and there is no want of pieces of a proper ſize to form them) would add much to the grandeur and ſplendour of any ſumptuous gallery.

But diſregarding the beauty which delights the eye, let us proceed to objects that attract and intereſt the curioſity of the philoſophical enquirer. We ſhall find that the cinereous bodies included in this glaſs are only points of lava with a feltſpar baſe; and on examining in various places the current of this glaſs, we ſhall perceive that it is a continuation of the ſame lava with the feltſpar baſe, of which theſe orbicular corpuſcles are compoſed; whence we ſhall not heſitate to conclude, that from this ſtone both the lava and the glaſs derive their origin, and that we find ſmall particles of lava ſcattered through the latter, becauſe it has not undergone complete fuſion; whence we find ſome pieces compoſed partly of glaſs and partly of this ſame lava. In ſome of theſe pieces we diſcover ſmall geodes, or thin filaments of an extremely brilliant and tranſparent glaſs reſembling in miniature the huſk of the cheſnut.

VII. Though this glaſs in many particulars reſembles the laſt ſpecies, it yet differs from it in others. It is perfect like that, but it is of a deeper colour. In it, likewiſe, the ſmall globules abound, but they are earthy and pulverizable; every one is detached in its diſtinct niche, or at moſt is only faſtened to it by a few points.

The deſcription of this ſeventh ſpecies of glaſs will render that of ſeveral others unneceſſary, ſince the glaſſes I ſhould have to deſcribe contain a greater or leſs number of ſimilar globules, differing only in the nature of the baſe incloſing them, which in ſome is more and in others leſs vitreous. I ſhall only make one obſervation, which I think to be of ſome importance, relative to the glaſſes I here omit. Several of them have, even in their internal parts, fiſſures frequently an inch in breadth and three inches in length. Theſe are not entirely vacuities, but are frequently croſſed by ſmall threads of glaſs connected at their two extremities with the ſides. The broadeſt of theſe threads are four lines in breadth, and the narroweſt ſcarcely a line. When broken they have the fragility of glaſs, and are found to be a moſt perfect glaſs, being colourleſs, and extremely tranſparent. It is eaſy to conceive that theſe threads have been formed in the ſame manner with thoſe of the capillary glaſs found in ſimilar fiſſures in the third ſpecies of glaſs.

VIII. The eighth and laſt kind of the vitrifications of the Monte della Caſtagna may be denominated an enamel that has the colour and luſtre of aſphaltum, of a ſcaly grain, a very ſmall degree of tranſparency in the points of the fractures, and of conſiderable weight and compactneſs, though it is extremely friable. It is found in ſolitary maſſes, not very numerous, and the broken pieces have the property of aſſuming a globoſe form. Some of theſe globes reſemble thoſe found by M. Dolomieu in the iſland of Ponza. I have been favoured with two of the latter by the Abbé Fortis; but I find, that, excepting their globoſe figure, they differ in every reſpect from thoſe of which I now ſpeak. The globes of Ponza are compoſed of leaves over leaves, of an imperfect enamel, do not give ſparks with ſteel, and contain feltſpars and mica; whereas theſe of the Monte della Caſtagna rarely include a few feltſpars, give ſparks with ſteel, have a vitreous appearance, and are not compoſed of plates or leaves.

Some

Some pieces of this enamel, broken and detached from the maſſes, are in one part true enamel, and in another lava. The latter gives few ſparks with ſteel, has a grain approaching to earthy, and, as far as I could diſcover, has for its baſe a ſoft horn-ſtone, from which, conſequently, the enamel, likewiſe, derives its origin.

Theſe are the principal vitrifications I obſerved in my excurſions to the Monte della Caſtagna. Some I have omitted to notice, ſince, ſome trifling differences excepted, they are eſſentially the ſame with thoſe deſcribed. It is proper, however, to remark, that more than one of them exhibits manifeſt ſigns of having once flowed down the ſides of the mountain, in the thick threads and vitreous filaments they contain, ſimilar to thoſe we ſee, on a leſſer ſcale, in glaſs fuſed in our furnaces, when it comes into contact with the cold air, as it flows down an inclined plane.

Every one of theſe eight kinds of glaſſes and enamels may be completely re-melted in the furnace. When ſpeaking of the compact glaſs of the Rock of the Caſtle of Lipari, I remarked its extraordinary inflation in the furnace, and ſaid that this tumefaction uſually accompanies a re-fuſion, in our fires, of ſolid glaſſes, and volcanic enamels. I then had in view thoſe of the Monte della Caſtagna, five of which, though compact and ſolid, in the furnace, ſwelled high above the edges, notwithſtanding that, before their re-fuſion, they only filled a third part of it. In the deſcription of other glaſſes of Lipari, I ſhall have occaſion again to remark the ſame phenomenon, on which I ſhall make further obſervations in another part of this work.

Let us now proceed to conſider the moſt remarkable lavas of the ſame place, which have an immediate relation with the glaſſes and enamels, from bearing ſome characteriſtic impreſs of vitrification. I then flatter myſelf I ſhall have given a ſufficient detail of the volcanic products of this famous mountain.

The firſt ſpecies I ſhall deſcribe has for its baſe the petroſilex; is hard and compact, and proportionably heavy, of a ſiliceous aſpect, of a pale blue colour, giving ſparks with ſteel, and abounding in black, rhomboidal, well preſerved ſhoerls. When it was in a ſtate of fluidity, it encloſed within it ſeveral bodies of a different nature from itſelf; which being angular, and having ſharp edges, ſhew that at the time they were included in it they were not in actual ſuſion. Their colour, which is that of baked brick, their numerous fiſſures, and their fragility, incline me to believe that they have been calcined, probably when they were taken up by the current.

This lava is ſpotted, and, in many places, even veined, with a black and opake enamel, harder than itſelf, but which gives but few ſparks with ſteel. Its aſpect is between the ſiliceous and the vitreous, and it has great compactneſs. The ſhoerls it contains are unaltered. This lava is diſpoſed in ſtrata, and extends a conſiderable way in ſome of the hollows of the mountain.

The extreme blackneſs and homogeneity of the enamel into which this lava is changed in the furnace, prevents the eye, at the firſt view, from diſcerning the ſhoerls it contains; but they are diſcoverable with the lens. They have loſt their cryſtallization, and have aſſumed a globoſe figure, a certain mark of fuſion, and their black colour is tinged with a dead green. The re-fuſion ſhews that this lava contains a number of feltſpar ſcales, which I at firſt could not diſcern even with the aid of the lens. Their white and ſomewhat changeable colour renders them viſible on the extremely black ground of the re-melted enamel.

The ſecond lava is of a feltſpar baſe, partly white, and partly of a reddiſh yellow: it has a lucid grain, and includes amorphous feltſpars, unequally diſtributed, being rare in ſome parts and abounding in others. In many places, it is a true glaſs, diſtributed in

in ſmall maſſes of various colours, ſome black, others cinereous, and others white: the latter is as traſparent as factitious glaſs.

This lava is rather rare; at leaſt I only met with two pieces of it, about the middle of the mountain; and from their angles and fractures I judged that they had been detached from ſome larger maſs.

It is one of the very few kinds which melt with difficulty in the furnace; but it is at length reduced to a black porous enamel, but without the fuſion of the feltſpars.

The third lava is of a grey colour, hard, compact, heavy, rough to the touch, and granulous. It has for its baſe the petroſilex, and gives vivid ſparks ſo copiouſly with ſteel that it may ſupply the place of flint. When viewed in the dark by the light of a candle, it ſhines ſo brightly in a number of points, that, at firſt ſight, we might be induced to believe that it was full of ſmall cryſtallized and extremely brilliant zeolites, or little lucid ſhoerls; but on more attentive examination we diſcover, eſpecially in the recent fractures, that theſe points are only ſmall particles of glaſs, ſcattered in great abundance through its whole ſubſtance.

On one ſide of the Monte della Caſtagna there are prodigious maſſes of this lava, but in detached pieces, which leave us in uncertainty with reſpect to its origin.

In the furnace this lava produces a black homogeneous enamel, compact, and ſlightly tranſparent in thoſe parts of the edges which are thinneſt.

The fourth ſpecies has a feltſpathoſe baſe, and likewiſe contains a number of vitreous particles, but which approach rather to the nature of enamel than to that of glaſs.

As this lava is extremely white, we might at firſt be induced to ſuſpect that it has been decompoſed by ſulphureous acids; an opinion which its friability appears to confirm. But there is more than one reaſon to convince us of the contrary. Firſt, the injury which this lava had received from theſe acids would have extended to the enamel, as I have ſhewn that the enamels and vitrifications of Vulcano are ſenſibly altered by theſe volatile ſalts, whereas the preſent enamel is not at all affected. Secondly, as theſe vapours act on the ſurface of volcanic productions, the decompoſition and whiteneſs do not uſually enter very deep into them; and the nucleus of theſe products retains its colour and primitive compactneſs. An example of this we have already noticed in the lavas of Solfatara and its environs*; and we ſhall ſoon have occaſion to mention another in thoſe of Lipari, not far from the Stoves, or hot baths. The preſent lava, however, which is in detached pieces, many feet in thickneſs, has the ſame whiteneſs and friability on its ſurface and in its moſt internal parts. Laſtly, theſe vapours, in decompoſing volcanic products, take away the roughneſs of the parts, and render the ſurface ſmooth and more or leſs ſoft to the touch; but this lava retains the ſame roughneſs in every part. I muſt here add, that, in all my reſearches about the Monte della Caſtagna, I have not found any part of it which ſhew ſigns of the influence of theſe ſulphureous vapours.

The furnace in a few hours reduces this lava into a groſs enamel of little adheſion, and of which many parts are not vitrified; but in a longer time, it paſſes into a true homogeneous and extremely porous glaſs.

The fifth and laſt lava may be conſidered in many different points of view, each of which deſerves to be diſtinctly noticed; the fire and elaſtic fluids having produced very different qualities in the ſame product. The following are the principal:

If we break a maſs of this lava into ſeveral pieces, we ſhall find that ſome of them have many cracks or fiſſures: ſome extending lengthwiſe, and which ſeem to have been pro-

* See Chap. II.

duced

duced by the retiring of the parts on congelation, and others of a roundiſh form, probably the effect of the action of the elaſtic gaſes. Theſe fiſſures are ſurrounded with fibres, knotted and twiſted in a thouſand ways, and reſembling thoſe found in the cavities of ſome kinds of pumice; except that the fibres of the latter, the fineſt at leaſt, have the luſtre and colour of ſilver, whereas theſe are of a dark grey, and a ſtructure not at all vitreous.

Other pieces of the ſame lava have not theſe fiſſures, and differ from the former likewiſe in other reſpects. Thoſe before deſcribed are light, and have a ſpongineſs ſimilar to that of ſome burnt bones, as alſo great friability; whereas, on the contrary, theſe are compact, hard, heavy, and contain ſmall and ſhining particles of glaſs.

Others inſtead of theſe particles or points have a vitreous ground, but ſcattered over with ſmall globules of lava.

Laſtly, others have paſſed into glaſs, which would be very perfect were it not mixed with the above-mentioned globules.

The colour of this lava, where there are no vitreous parts, is cinereous; and its baſe, as far as I can diſcover, horn-ſtone. In the furnace it produces a ſcoriaceous enamel.

Having thus deſcribed the principal volcanic products of Campo Bianco and the Monte della Caſtagna, which are pumices, glaſſes, enamels, and lavas, more or leſs vitreous, I ſhall here make a few remarks, before I proceed to deſcribe the other objects that drew my attention on the remaining parts of the ſhores of the iſland.

Though Campo Bianco and the Monte della Caſtagna are conſidered as two diſtinct mountains, they are ſo connected together and continued that they may very juſtly be eſteemed only one; or at leaſt as forming a ſingle group in the iſland. The identity of the products in both, confirms in ſome meaſure the unity of this group. In the part abounding with pumices, we meet at every ſtep with detached pieces of glaſs, and on the Monte della Caſtagna amid the glaſſes we find numerous pumices; a part of the ſolid kinds of which are dug here after removing the maſſes of glaſs under which they are buried.

It is further to be obſerved, that though this mountainous group when ſeen from the ſea appears iſolated, yet, on aſcending to the ſummit, we find that it extends far to the weſt, as we ſhall perceive more diſtinctly when we come to treat of the Stoves of Lipari. I believe, therefore, I ſhould not exaggerate were I to ſay that this group of mountains, taken in its whole extent, has a circuit of eight miles; nor is the extent of its vitrifications leſs, if in theſe we include likewiſe the pumices, which are in fact only a leſs perfect glaſs.

But how much more extenſive, on the ſide of the ſea, muſt have been this tract of vitrified ſubſtances in the ages immediately following the formation of the iſland! We have already ſeen how the rain-waters, that drain toward the ſea from the ſummit of Campo Bianco, have deeply corroded and furrowed its declivity. The ravages which the waves of the ſea have made, and are continually making, have already been deſcribed, and are ſufficiently proved by the heaps of pumices fallen along the ſhore, and thoſe which float on the waves at the foot of Campo Bianco; for neither a north nor a north-eaſt wind can blow without a prodigious quantity of theſe light ſtones being wafted into the harbour of Lipari.

The devaſtations which the vitreous mountain della Caſtagna has ſuffered, and is daily ſuffering, on the ſide beaten by the ſea, are likewiſe very great. That theſe have formerly been very conſiderable, is proved by the ſmall vitreous rocks within the ſea, which there is no doubt anciently formed one whole with the mountain, and have been ſeparated from it by the corroſion and deſtruction of the intervening glaſſes.

In this extenſive group of mountains and their environs, we find no characteriſtic marks of the exiſtence of ancient craters. It is true, that in ſeveral places we find cavities that approach to a round form; but they leave us in abſolute uncertainty whether they have been mouths of volcanos, ſince we meet with ſimilar ones, and much more ſpecious, in countries not volcanized. It cannot however be doubted, that Campo Bianco and the Monte della Caſtagna are the produce of ſucceſſive eruptions, ſome of which have formed currents, and others been thrown into the air. Of the former we have ſeen many proofs both in the pumices and the glaſſes; and the detached and ſolitary pieces of theſe ſame ſubſtances are ſufficient evidence of the latter.

With reſpect to the glaſſes, beſides thoſe which are ſcattered ſolitarily on the Monte della Caſtagna, we meet with them diſperſed in like manner on Campo Bianco. The ejections of theſe ſubſtances from the volcanos have likewiſe extended beyond theſe places, as I began to find them ſcattered among the lavas before I arrived at Campo Bianco. We have alſo ſeen that ſome kinds of the pumices bear evident marks of having been thrown into the air from the volcanic gulphs. This I now judge to have been the origin of the pulverized pumice with which Campo Bianco abounds. I at firſt imagined it was to be attributed to the ſuperficial corroſion of the rain-water, and the influence of the atmoſphere; but in more than one deep excavation made on the ſpot, where either the rains have not penetrated, or if they have, muſt have been unable to corrode, from want of impetus, I found the ſame abundance of pulverized pumice: I am therefore of opinion, this muſt have been thrown out by the ſame volcano that ejected the pumices. Such, in fact, is the conſtant effect obſervable in burning mountains; which, when they eject lavas and other ignited bodies, throw out at the ſame time clouds of aſhes, which, when attentively examined, are found to be only a mixture of ſmall particles of the larger bodies ejected. I have made the ſame obſervation relative to the fiery ſhowers of Veſuvius and the ejections of Stromboli.

We have ſeen that the primordial rocks, which, by their liquefaction, have given birth to Campo Bianco, the Monte della Caſtagna, and the vaſt rock on which the caſtle of the iſland ſtands, were for the moſt part feltſpar or petroſilex, ſometimes converted into pumices, ſometimes into glaſſes and enamels, and ſometimes into mixed lavas containing more or leſs vitreous parts. In deſcribing theſe vitreous parts, and the large maſſes of glaſs that are a continuation of the lavas, I have not attempted to determine whether it has been the conſequence of a more vehement heat, that the lava has in ſome places been changed into glaſs, or becauſe that in ſome parts it was more eaſy vitrifiable. Both opinions appear probable, and poſſibly both may be true, according to the difference of circumſtances. Where a lava retains the nature of lava for ſome extent, and then changes into glaſs, I find no difficulty in ſuppoſing that its vitrification has been the conſequence of a more intenſe heat: but wherever large maſſes of lava exhibit points of glaſs, not only externally, but even deep in their interior parts, it does not ſeem very natural to ſuppoſe that theſe can have been the effect of a ſtronger action of the fire upon thoſe points of the lava; they muſt rather be aſcribed to a greater aptitude in the lava itſelf to vitrify in thoſe parts.

And here an opportunity preſents itſelf to mention an appearance I obſerved, which certainly merits ſome attention. In making the circuit of the ſides of Campo Bianco, and the Monte della Caſtagna, I ſometimes met with iſolated maſſes which any perſon without the leaſt doubt would have pronounced to be glaſs, as in fact they were externally, this glaſs inclining to a yellow or blue colour, being very ſmooth, and promiſing to prove extremely fine. But on breaking one of them it was found to be a pure and ſimple lava, coated with a ſlight varniſh of glaſs, like the glazing of an earthen veſſel. I

at firſt imagined that the heat had acted more powerfully on the ſurface of theſe lavas when fluid, than on their internal parts: but a further examination convinced me this ſuppoſition was ill founded; for more than one of theſe maſſes were angular, and in ſome places diſcovered old fractures which ſometimes had a conchoidal figure. I could alſo ſometimes join two pieces together in ſuch a manner as to prove that they had once formed a larger whole. In theſe caſes the vitreous varniſh, which was about the thickneſs of one-ſixth of a line, was equally extended over the angles, the fractures, and even the ſurfaces by which the two pieces might be ſo exactly joined. It was impoſſible, therefore, not to conclude that this varniſh had been produced poſterior to the action of the fire. But by what cauſe? I candidly confeſs I know not: I can only ſay, that on examining volcanic glaſſes on the ſpot I have found that ſome of them, in the parts moſt expoſed to the action of the atmoſphere, and the elements, have contracted a kind of opal-appearance, extremely agreeable to the eye, but entirely ſuperficial. May not the ſame cauſe, whatever it be, which gives this pleaſing poliſh to glaſs, by acting on the lava, cover it with a vitreous varniſh? I ſhall not, however, venture to determine any thing poſitively.

I ſhall conclude my obſervations on theſe places with ſome remarks on the univerſal ſterility that reigns through them, though their origin is anterior to the records of hiſtory. If we except a few lichens attached to the fiſſures of the glaſſes, there is no veſtige of a ſingle living vegetable over the whole Monte della Caſtagna; and on Campo Bianco, as has before been ſaid, they are extremely rare. This ſterility is a conſequence of the vitreous nature of the mountain, which in ſo many ages has not been decompoſed into a vegetable earth, and according to every appearance will continue the ſame for a long ſeries of centuries to come. Among all volcanic products, the vitrified ſubſtances are the moſt refractory to the changes of the atmoſphere and the action of the humid elements. This ſimple obſervation may teach us how uncertain are all attempts to determine the epochs of the flowing of lavas from the greater or leſs change they may have ſuffered from the influence of the atmoſphere combined with that of other deſtructive agents; the degree of ſuch alteration depending on the nature of the lava itſelf, according as it may be more or leſs earthy, or more or leſs vitreous. We may indeed, with the utmoſt reaſon, aſcribe an antiquity almoſt tranſcending our conception to a volcanic glaſs, or a vitreous lava, which ſhall naturally have been reduced to an earthy ſoil, proper for the production and nouriſhment of plants.

The abundance of the objects preſented by this ſide of the iſland of Lipari, has compelled us to be ſomewhat diffuſe; but this it was impoſſible to avoid, without failing in accuracy. This prolixity will, however, be compenſated, by the brevity with which the other productions of the baſe of the iſland may be deſcribed; ſince, though we have ſcarcely examined more than a third part, the remainder offer only a few facts deſerving obſervation.

Beyond the pumices the lavas again appear, beginning from the *Punta del Segno Nero*, and extending in a chain of ſeveral miles, which on the ſide of the ſea deſcends in precipices and craggy declivities. Theſe lavas, with reſpect to their compoſition, will not greatly attract the attention of the volcaniſt, ſince in that they do not differ from thoſe of other volcanos; they will only excite his notice for their currents, which in ſome places deſcend ſeparately, and in others interſect, and paſs over each other. For the extent of three miles they do not appear to have ſuffered any alteration but that which is the effect of the atmoſphere, and which in them is extremely ſmall; but when we arrive oppoſite to Saline, and tack the boat towards the Straight of Vulcano, we find them all more or leſs decompoſed by ſulphureous acid fumes. They preſent a highly

varied ſcenery, from the diverſity of colours they exhibit; among which the red and white are moſt conſpicuous. On a nearer examination they are found ſoft, and ſome of them pulverizable; but the decompoſition only reaches to a ſmall depth; theſe lavas ſtill preſerving, in their internal parts, their hard grain and natural compactneſs. Several of them are covered with a cruſt of ſulphate of lime (ſelenite).

The lavas thus changed by the action of theſe ſalts, extend only from the ſea-ſhore to the part oppoſite Vulcano; leaving, however, ſome intervening vacancies. Such is that denominated La Grotta della Signora, formed by a ſpacious incurvation of the ſhore hollowed out of the lava, which may be termed a breccia, ſince it is compoſed of a number of angular and irregular pieces of lava of a petroſiliceous baſe, united together, and which, not being extremely ſolid, has eaſily been broken and excavated by the action of the waves.

Proceeding farther we find the ſea make an incurvature, and form a ſmall bay called the Valle di Muria, which, from the intereſting objects it preſents, merits to be ſomewhat particularly deſcribed. On its ſides riſe high and ſteep rocks of lava, half demoliſhed, the fallen pieces of which lie in heaps on the ſhore. In ſeveral places this lava exhibits no traces of having ſuffered any alteration from the action of the ſulphureous acids; but in others a decompoſition very ſenſibly appears; nor is it wanting in incruſtations of ſulphate of lime, of a red tinge, though ſome remain very white. But neither in theſe places, nor in others before mentioned, do theſe fumes any longer act, no ſmell of ſulphur is perceived, nor any vapour ſeen; and it is probable that all remains of internal conflagration have long ſince been extinct.

Among theſe lavas we likewiſe find enamels and pumices. Sometimes the former are ſeparated from the latter, and ſometimes one part of the ſame piece is pumice and the other enamel. The latter is opake, of a cinereous colour, friable, of a ſcaly grain, and, as I judge, of a petroſiliceous baſe. The pumice is of the claſs of the compact and heavy, and of a filamentous grain. Both the pumices and enamels frequently contain feltſpars, though ſcarcely diſcernible, and ſome ſcales of black ſhoerls.

Both theſe bodies produce in the furnace a black enamel, with many bubbles in that afforded by the enamel, but fewer in the product of the pumice: the ſhoerls and feltſpars fuſe in both.

Among theſe decompounded lavas we meet with certain curious and beautiful objects, which derive their origin, in my opinion, from filtration. Two of theſe I will deſcribe, after having given ſome idea of the lava in which they are obſerved.

This lava is white, friable to a certain depth, and manifeſtly ſhews a decompoſition by ſulphureous acids. It is of a petroſiliceous baſe, in many places diſpoſed in ſtrata; and its ſtratification is probably that of the ſtone from which it originated. It is full of ſmall cells, and other minute cavities, within which the objects I mentioned make their appearance.

The firſt of theſe conſiſts of minute cryſtallizations of ſhoerls. From the internal ſides of ſeveral of theſe cells and cavities project very ſlender ſhoerls, which form ſometimes a kind of plume, at others a fan in miniature, at others a truſs or bunch, and at others they are detached, and, when viewed with the lens, reſemble minute briſtles of a dark chefnut colour. A ſimilar appearance I obſerved in the fiſſures of a lava of Solfatara*. I am of opinion it is to be aſcribed to filtration, after the hardening of the lava; ſince, though it is certainly very common to find ſhoerls in lavas, they are always found incorporated within them, in the ſame manner as they exiſted in the ſtone, their original matrix, and never detached from the lava, as in the preſent caſe.

* See Chap. II.

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The ſecond filtration has produced ſmall quartzoſe cryſtals; and the manner in which they are diſtributed in the lava, and their prodigious number, render them a very ſingular phenomenon among volcanic objects. Wherever the lava is ſcabrous, wherever it has folds, ſinuoſities, cavities, or fiſſures, it is full of theſe cryſtallizations. The larger cryſtals extend to three lines and a half in dimenſion; but theſe are extremely rare, and almoſt always ill-formed. The greater part are about half a line. When we view a piece of this lava expoſed to the ſun, it ſparkles in every part; but on a more attentive examination we diſcover the ſingle, minute, quartzoſe cryſtals, which may be diſcerned ſtill more clearly by the aid of a lens.

Theſe cryſtals generally conſiſt of an hexagonal priſm, infixed by the lower part into the lava, and in the upper terminated by an hexagonal pyramid, the ſides of which are for the moſt part iſoſceles triangles. The form of theſe pyramids, however, is not always the ſame, neither with reſpect to the number nor the figure of the ſides, and the ſame is to be obſerved of the priſms. Three cryſtals alone, among the great number I examined, were terminated by two pyramids: the priſm was attached to the lava in a few points, and the pyramids projected out. This kind of cryſtals is extremely brilliant, and of the firſt water. There is ſcarcely one which is not ſtreaked tranſverſely like rock cryſtals. The moſt regular are in ſmall cavities, without, however, entirely covering the ſides of them, as is uſual with the geodes. Not a few of them likewiſe are found out of theſe cavities, in ſome parts of the lava: theſe are frequently ſhort and grouped, not without ſome confuſion of the priſms and pyramids.

The lava which is embelliſhed with theſe cryſtallizations forms immenſe rocks, and vaſt elevations hanging over the ſea, which, wherever they are broken to a certain depth, are found to contain theſe cryſtals, accompanied by capillary ſhoerls, ſuch as have been already deſcribed; but the latter are not very numerous.

It is well known that rock cryſtals ſometimes contain within them extraneous bodies, ſuch as ſmall tufts of amianthus or aſbeſtus, metallic ſulphures, earthy particles, and even cryſtallized ſhoerls of various ſizes. I have in my poſſeſſion a group of needle-formed cryſtals, from Mount St. Gothard, within which are ſeven ſmall priſms of black and ſtriated ſhoerl. The ſame may be obſerved in theſe minute cryſtals, relative to the capillary ſhoerls, as will appear from the following facts: Firſt, I have found in a fiſſure of the lava, a quartzoſe cryſtal, containing a group of capillary ſhoerls, in part included within it and partly projecting out. Secondly, the apex of a ſimilar group or tuft projected from one ſide of the ſame piece of lava, and buried itſelf, with extended threads, within the pyramids of three cryſtals that formed a knot. Thirdly, one cryſtal was perforated from ſide to ſide by a needle of ſhoerl, the two ends of which projected out; and many ſimilar needles projected from the ſurface of another cryſtal. I might produce many other inſtances of theſe ſports of nature equally curious; but theſe appear to me ſufficient to prove my aſſertion, as alſo another truth, which is, that the formation of theſe capillary ſhoerls muſt have preceded that of the quartzoſe cryſtals; otherwiſe it is impoſſible to conceive how the former ſhould have penetrated the ſubſtance of the latter.

I have generally experienced that the decompoſition of lavas was an obſtacle to their perfect fuſion; and this was the caſe in the preſent lava. In the furnace it vitrified ſuperficially, with ſome beginning of internal fuſion; but the pieces ſtill preſerved the form they before had. Having broken ſeveral of theſe pieces, I examined the cavities, which, according to the preceding obſervations, muſt contain the cryſtals of which I have been ſpeaking. I in fact found them there, and, to my great ſurpriſe, perfectly unchanged; as I could not diſcern, in either the priſms or pyramids, the ſlighteſt flaw or

ſcratch, and they even retained their brilliancy and tranſparency. I obſerved that ſome of them had been overflowed, if I may uſe the term, by the lava ſuperficially re-melted, to one-third or a half of the priſm, and ſome of them quite to the baſe of the pyramid; but the part which roſe above the lava was perfectly well preſerved. Very different was the caſe with the ſhoerls, which, by their melting, had left blackiſh ſpots on the lava, though in more than one of theſe the traces of the ſhoerl might ſtill be diſtinguiſhed.

A third ſtone, the origin of which I likewiſe aſcribe to filtration, is a ſemi-tranſparent calcedony, of a milky whiteneſs, with a ſlightly blueiſh caſt. It is found in reniform or kidney-ſhaped pieces, within the lavas of the above-mentioned Valle di Muria, and ſtill more plentifully on the ſea-ſhore. The ſmalleſt are an inch in diameter, but the largeſt eight, and ſome twelve inches. There are few of them which have not knobs and cavities; the latter commonly form geodes of minute quartzoſe cryſtals, but of which little more is diſcernible than the pyramid. It is well known that calcedonies differ very much in hardneſs. The preſent are extremely hard, and, from the ſtrength and quantity of the ſparks they give with ſteel, equal the beſt flints. They will likewiſe cut factitious glaſs; but in this they do not excel the ſmall quartzoſe cryſtals produced by filtration, of which we have juſt ſpoken.

On breaking ſome of theſe calcedonies, one of them was found to contain two extraneous bodies; that is, a ſmall piece of lava and ſome ſulphate of lime cryſtallized; which were probably taken in by the particles of the calcedony, while in a ſtate of fluidity or ſoftneſs.

Theſe ſubſtances, which are found on and within the lavas, and are foreign to them, derive their origin, in my opinion, from their decompoſition cauſed by the ſulphureous acids, or even by the injuries of the atmoſphere. The coherence of their conſtituent parts being deſtroyed, particles of them are carried away and depoſited by the water in the cavities and fiſſures of the lavas, where, from the affinity of aggregation, they produce ſtalactitical concretions of different kinds according to their reſpective natures. If the lapidarious moiſture be a mixture of ſilex, alumine, magneſia, lime, and iron, in certain proportions, it will cryſtallize into ſhoerls; or if it be entirely or principally ſiliceous, it will produce quartzoſe cryſtals. If again this moiſture, in which the ſilex is ſo abundant, contain likewiſe a ſmall quantity of alumine, it will conſolidate into maſſes of calcedony, which will take the form of the cavities that have received the moiſture.

This latter ſtone has been diſcovered in other lavas. Such are the Vicentine, called *Enidri Vicentini*, from the drops of water which they ſometimes contain. My ſpecimens have none; but I doubt whether any have been found equal to them in ſize in volcanic countries. In ſome of them, their milky whiteneſs is interrupted by roſe-coloured ſpots; which colour is probably derived from the iron that tinged the lava before its decompoſition.

Before I conclude this chapter, two things more remain to be mentioned, which I obſerved before I returned to the haven of Lipari, which is diſtant about three miles from the Valle di Muria.

Firſt, there are two rocks within the channel of Vulcano; one nearly of a triangular ſhape, a hundred and fifty-two feet high, and twenty in breadth. It is called Pietra Lunga, and is remarkable for a kind of gate in the middle of it, through which ſmall veſſels may paſs. The other is of the ſame height, but has greater breadth, and is about two hundred paces diſtant from the former. The matter of which both are formed is the ſame; that is, a decompoſed lava, of a petroſiliceous baſe, and extremely reſembling that of the Valle di Muria, which contains the quartzoſe and ſhoerlaceous cryſtallizations; though in this none are to be found. The lavas of Lipari extending along the

ſhore, in front of theſe two rocks, are partly of the ſame quality, which inclines me to believe that anciently theſe lavas formed one continued whole with the two rocks, though the former is diſtant from them two hundred and forty feet, and the latter a full mile; and therefore that the channel which ſeparates Vulcano from Lipari, and which is but narrow, muſt once have been much narrower. I have likewiſe frequently obſerved, when the ſea has been perfectly calm, rocks under water, between the two above-mentioned and the ſhore of Vulcano; whence it appears to me not improbable that this iſland was formerly united to Lipari, and that the inceſſant beating of the waves has in time formed this channel or ſtrait, in the ſame manner that many other ſtraits, of much greater breadth, have been produced by the ſea.

The ſecond obſervation I had to make reſpects the appearance of Monte della Guardia as ſeen from the ſea. It there appears bifurcated, from the projecting of a much ſmaller mountain, called Monte Gallina, from its north-eaſt ſide. The roots of Monte della Guardia, on the ſouth and ſouth-eaſt ſide, are in the ſea; and ſome parts of them afford pumices, which higher up are buried under vaſt accumulations of lava that has flowed over them. Beſides the pumices, ſeveral of theſe lavas, in the direction of the ſouth-weſt, preſent large maſſes of glaſs, partly detached, and partly incorporated within them. If to theſe two kinds of vitrifications we add the others which lie under the Caſtle of Lipari, and on its ſides, and which make a part of the baſe of the Monte della Guardia, we ſhall perceive how much this mountain muſt have abounded in vitreous eruptions; an abundance which will appear ſtill greater when we come hereafter to conſider its more elevated parts.

Theſe are the moſt important objects which preſented themſelves to my obſervation in my excurſion round the baſe of Lipari; and if in deſcribing them I may appear to have been ſomewhat too diffuſe, their number and importance, and my deſire to give the reader an accurate idea of them, muſt be my excuſe. The interior part of the iſland, which I ſhall now proceed to conſider, will afford me an opportunity to be more concife.

VOLUME THE THIRD.

CHAP. XVI.—LIPARI.

PART THE SECOND.—OBSERVATIONS MADE IN THE INTERIOR PARTS OF LIPARI, AND SEVERAL OF ITS MOUNTAINS.

Extremely irregular appearance of this island.—No characterised crater discoverable in it.—Conjecture that the Monte San Angelo, and the Monte della Guardia, the highest mountains in Lipari, were produced by two distinct volcanos.—Efflorescences of muriate of ammoniac (sal ammoniac) in two caverns near the plain called La Valle.—Curious volcanic breccia.—The volcanic tufa which, on one side, covers the whole mountain of the celebrated Stoves (or vapour baths) of Lipari, has every appearance of having been an earthy current; and is remarkable for containing true ligneous coal.—Conjectural inquiries into the origin of this.—The road that leads from the town to the stoves formed, in a great measure, of tufa corroded by the rain-water.—Various bodies observable within this corroded tufa.—Detached pieces of enamel, which include many small bulbous bodies that appear to be garnets.—Comparison between these and the garnets of Vesuvius.—Enamel of the Liparese garnets, which has for its base the horn-stone.—Detached lavas in the road leading to the stoves.—Volcanic chrysolites in a lava with a horn-stone base.—These chrysolites compared with those of Etna.—Large pieces of red porphyry which do not seem to have suffered fusion.—None of these bodies disposed in currents; whence it is probable that they have been thrown into the air by some volcano.—A spacious plain of tufa rendered cultivable, situated beyond the Monte della Stufe, which affords numerous pieces of the finest and purest glass found in Lipari.—Local origin of this glass.—Bed of pumices on the extensive current of tufa before mentioned.—Stoves of Lipari described.—Remains of conflagrations of sulphur under them, and in their environs.—Prodigious number of lavas decomposed by the action of sulphureous acid vapours.—Oxyde of pure iron deposited on some of these lavas.—Variety of colours which they present to the eye.—Their decomposition usually in the inverse proportion of the depth of their masses.—When freed from the decomposition which renders it difficult to ascertain their nature, they are usually found of a petrosiliceous base.—This decomposition an obstacle to their fusion in the furnace.—Explication of the cause of this change.—Sulphates of lime variously coloured, and adhering to the decomposed lavas.—Iron, oxydated, and modified in various manners, the cause of the different colours of the decomposed lavas, and sulphates of lime.—Discovery of several amorphous and crystallised zeolites near the stoves.—Jelly which they form with mineral acids.—Emit bright flashes when on the point of melting, and swell considerably on their actual fusion.—Terms of comparison between these zeolites and those of other countries.—Their production not by the dry but the humid way.—Though the zeolites of several volcanized countries are probably formed within the sea, this does not seem to be the origin of those of Lipari.—Instances of zeolites produced in fresh water.—Springs of hot water which supply the baths of Lipari.—Another prodigious accumulation of decomposed lavas, and sulphures of lime, on the southern side of the island.—Perhaps there is no volcanized country in Europe where the sulphureous fumes issuing from subterranean conflagrations are so extensive as at Lipari.—Vitrifications of Campo Bianco, and the Monte della Castagna, which are found attached to those of the Monte delle Stufe, the Monte San Angelo, and other places.—Proofs that almost two-thirds of Lipari, which

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iſland is nineteen miles and a half in circumference, are compoſed of vitrifications.—The materials of which this iſland is compoſed principally derived from the petroſilex, feltſpars in the maſs, and horn-ſtones, in part ſimply fuſed by ſubterraneous combuſtions, and in a ſtill greater part vitrified.—Notwithſtanding the immenſe accumulations of this vitrification, an extraordinary intenſity of heat not neceſſary to be ſuppoſed.—An exception in the pumices originating from granite.—Few notices left us by ancient authors relative to the fires of Lipari; though we know from indubitable authorities, that both the iſland and the city exiſted before the Trojan war.—No eruptions in this iſland deſcribed by hiſtory.—Feeble fires, viſible by night, alone obſerved in ancient times.—This iſland, the produce of ſubterranean conflagration, had arrived at its greateſt dimenſions, before it was noticed by any writer.

TO acquire a juſt knowledge of the interior part of a mountainous vulcanized country, the beſt method, as it appears to me, is firſt to aſcend the higheſt mountain, and, after having examined the ſummit, to turn the eye downward, and obſerve the chain of ſmaller mountains that ſurround it. We may thus, at one glance, diſcover the form of theſe inferior mountains, their interchangeable connection, and the relations which they bear to each other, and to the primary mountain, with other important objects, which had we firſt aſcended one of the lower eminences, we ſhould not have been able to aſcertain with equal preciſion and clearneſs.

After, therefore, having made reſearches, with the greateſt diligence, around the ſhore of Lipari, when I proceeded according to my original intention, to explore likewiſe the internal parts of the iſland; I firſt aſcended to the ſummit of the Monte San Angelo, ſituated to the north of the city of Lipari; this being the higheſt mountain in the iſland. Here the whole of the iſland preſented itſelf, at once, to my view, and I could perceive that, far from having a conical figure, ſuch as is that of Stromboli, and in a certain manner of Vulcano, it is compoſed of groups of broken and half deſtroyed mountains confuſedly heaped together; which give it a moſt irregular appearance. It is evident that the volcanic fires have raged in many places, and that, from their too great proximity to each other, they have not been able to form thoſe diſtinct cones which are ſo obſervable in Veſuvius and on Etna. But the matters ejected by the ſuperior volcanos, pouring upon thoſe which iſſued from the lower, have produced in every part confuſion and diſorder. From the ſummit of Etna we may diſcover a multitude of ſubjacent craters, well characterized; but from that of San Angelo I could not perceive one. There are, indeed, many openings and hollows to be ſeen, which once perhaps were fiery mouths; but none of theſe cavities have at preſent the figure of an inverted tunnel, poſſibly becauſe they have been in part filled up and deſtroyed by ſubſequent eruptions, or by time.

M. Dolomieu obſerved at the ſummit of this mountain a circular plain, ſurrounded by eminences ſhelving towards the inſide, which he imagined might be the remains of an ancient crater. This conjecture, after a careful examination of the ſpot, does not appear to me improbable. The ſame naturaliſt likewiſe ſuppoſes that this mountain, the height of which is nearly a mile above the ſea, was the firſt that was formed in the iſland through which the volcano burſt forth, and which ſerved as a baſe and ſupport for the other mountains that were thrown up afterwards. This opinion is extremely plauſible; but the fact may likewiſe be, in my opinion, that this mountain, at the time of its production, or very ſoon afterwards, had for its companion the Monte della Guardia, which looks towards the ſouth, and of which I have before ſpoken; both becauſe the latter is ſeparated from the former, and becauſe it is little inferior to it in height.

From the ideas ſuggeſted by a view of the places themſelves, I conceive it not improbable that theſe two mountains, which riſe ſo much higher than the reſt, have been produced by two diſtinct volcanos, and were the firſt that emerged from the ſea; forming then two ſmall iſlands, which afterwards, enlarging their baſe, united into one; for it is well known that other volcanic iſlands originally conſiſted of ſeveral parts, which afterwards were joined. To theſe two mountains ſubſequent eruptions made new additions, until at length the whole of the iſland of Lipari was produced, which, from the eroſion of the rains and the ſea, is now certainly leſs than it once was.

From Monte San Angelo, I paſſed to the Monte della Guardia, which on the ſide towards the ſea preſents only ſteep and rugged precipices of lava, and conſequently is deprived of all vegetation and verdure; but on the land ſide, which is oppoſite in one part to the city, it is formed with gentle declivities, and covered with vineyards; for, as its ſoil is tufaceous, it leſs reſiſts cultivation than any other volcanic product. While ſtanding on the ſummit I was ſtill more confirmed in the opinion, that this mountain is not an acceſſary to, or prolongation of, that of San Angelo; but that it forms a whole of itſelf, and may be called primary equally with the other, from the diſtance between them, and the wide valley, running from eaſt to weſt, by which they are ſeparated.

Having viſited theſe two mountains, which are the loftieſt in the iſland, I proceeded next to examine the leſſer eminences, and found additional confirmation of what I have already obſerved; I mean that theſe eminences have entirely loſt the true form of volcanic craters, ſo much have the matters ejected from them interſected each other, and confuſedly intermixed. The long and unknown ſeries of years that has elapſed ſince theſe eruptions muſt, no doubt, have contributed to increaſe the confuſion. Excepting, therefore, ſome few flat places, and practicable declivities, which the inhabitants have rendered cultivable by great labour, Lipari is a ruinous pile of horrid precipices, rugged cliffs, and enormous maſſes; and there is no ſummit or projecting part of a mountain which does not exhibit manifeſt indications of its future fall and deſtruction. The materials of which theſe ruins are formed are pumices, enamels, and glaſſes, which I ſhall not deſcribe, becauſe they are partly the ſame, and partly extremely analogous to thoſe of which I have already given the deſcription.

Some of the natives, by the accounts they gave me, excited my curioſity to viſit a cavern ſituated in a ſmall plain called La Valle, about a quarter of a mile to the weſt of the city. This cavern has its mouth in a rock of decompoſed lava, and a man may walk into it to the diſtance of fifty paces. Its ſides are covered with efflorеſcences of muriate of ammoniac, as were likewiſe thoſe of another ſmaller cavern in the ſame rock. This ſalt muſt have been formed by ſublimation, having been reduced to vapour by ſubterraneous fires, and thus attached itſelf to the ſides of theſe two caverns, as it is found attached in many other volcanic places; but of theſe fires and ammoniacal vapours no traces whatever now exiſt.

In this ſhort excurſion I found by the way a volcanic breccia, which, on account of the heterogeneous ſubſtances it contained, it would be improper to paſs without notice. It is found in large iſolated pieces, but I was unable to diſcover from what vein it derived its origin. Its principal ſubſtance is an earthy lava, of a blueiſh grey, a coarſe grain, and little hardneſs. In this were incloſed the following bodies:

Firſt, fragments of two kinds of lava; the one black, of a ſcaly fracture, and which moved the magnetic needle at the diſtance of two lines; the other of a grey ground, a very rough ſurface, an unequal fracture, which gave ſparks with ſteel, and contained ſmall plates of feltſpar. Both were of the horn-ſtone baſe, and emitted a ſtrong argillaceous odour.

Secondly,

Secondly, ſeveral pieces of vitreous lava, of a very beautiful colour, between a green and a blue: by its ſmoothneſs, clear fracture, its aſpect, and want of hardneſs, it reſembles the pitch-ſtone, or pitch-blende.

Thirdly, numerous ſmall pieces of a cinerous compact pumice.

Fourthly, pieces of a whitiſh ſemi-tranſparent glaſs.

Fifthly, ſmall pieces of a colourleſs glaſs, reſembling in tranſparency factitious glaſs. The largeſt piece was fourteen lines in length, and eight in breadth, and was, like the others, buried in the breccia.

Theſe five ſpecies of volcanic productions were certainly not natural to the ſubſtance of the lava; for their fractures and angles are very viſible, and by carefully breaking the lava they may be extracted entire. We muſt therefore conclude that they were abſorbed and incloſed in the lava when it was in motion, and thus were conſolidated into one body.

In making theſe obſervations a doubt ſuggeſted itſelf. Though to the naked eye, and likewiſe to the touch, the vitreous lava appears perfectly ſmooth, yet, when viewed with a lens of a ſtrong magnifying power, its ſurface appeared full of very minute fiſſures. At leaſt, if this was not obſervable in all, it was in ſeveral pieces of both theſe kinds of glaſs. I therefore conjectured, that when theſe ſubſtances were in an ignited ſtate, a current of water might have paſſed over them; or that they ſuddenly came in contact with the cold air; unleſs we rather chooſe to ſuppoſe that theſe fiſſures were produced, when theſe vitreous bodies, in a frigid ſtate, were ſuddenly enveloped in the fiery torrent.

But the celebrated Stoves of Lipari appear to be the object which moſt excites the curioſity of travellers; I could not therefore omit to viſit them. I muſt, however, confeſs, that the road which led to them afforded me more inſtructive objects than the ſtoves themſelves.

Theſe ſtoves lie to the weſt of the city, at the diſtance of four miles, and ſomewhat beyond the ſummit of a mountain, which, after thoſe of San Angelo and della Guardia, is one of the higheſt in the iſland. The road I went was that which leads immediately from the city to the ſtoves, and the only one which can be travelled without great difficulty. It is in a great degree the work of rain-waters, which have made a deep excavation in an immenſe maſs of tufa. In more than one place in this work I have ſpoken of volcanic tufas but almoſt always incidentally. The preſent ſpecies of this ſubſtance requires to be treated of ſomewhat more at length.

At the beginning of this work, when ſpeaking of the volcanic tufas of Poſilipo, I ſaid, and endeavoured to prove, that it was probable they were formed by ſlimy eruptions; though I would not deny that aſhes, ſand, and other ſubtile matters ejected by volcanos, penetrated either by the rain-waters or thoſe of the ſea when they covered the baſes of the burning mountains, have been conſolidated into ſome tufas *. The tufa of Lipari, of which I now ſpeak, has every appearance of having been an earthy current. It begins at about a hundred paces from the city, and continues without interruption to beyond the ſummit of the Monte della Stufe, or Mountain of the Stoves. This mountain, like moſt of the others, varies conſiderably in its different parts, in one place preſenting gentle declivities, and in another ſteep and rugged deſcents; here plains nearly level, and there precipices almoſt perpendicular. The tufa with which it is covered takes exactly the ſame courſe, and ſometimes curves, and as it were waves on the ſurface: nor does it in the leaſt differ in its ſinuoſities and windings, from the moſt completely cha-

* See Chap. II.

racteriſed currents of lava, which it likewiſe reſembles by being diſpoſed in beds lying one over the other, as apears in thoſe places which have been moſt corroded by the rain. I therefore was of opinion that this tufa had been a ſtream, if I may uſe the expreſſion, of ſlimy ſubſtances that had flowed down the mountain; as examples are not wanting of ſimilar eruptions produced in the humid way in the mountains Veſuvius, Etna, and Hecla.

But here a difficulty preſented itſelf in oppoſition to this hypotheſis. Had this part of the mountain been inundated by a torrent of water iſſuing from the earth, when its violence had ceaſed, the more heavy bodies muſt have ſubſided to the bottom in obedience to the laws of gravity, the leſs heavy have remained above them, and the lighteſt have occupied the higheſt place; which, however, is not the fact, ſince, as we ſhall ſee, at a ſmall depth within the tufa, are found large maſſes of lavas, enamels, and glaſſes. But it does not appear to me improbable that theſe maſſes may have been thrown out from ſome burning mouth, after the hardening of the tufa, within which they have not penetrated deep.

Not only the poſition and winding courſe of this tufa over the back and ſides of the mountain ſufficiently prove that it once flowed; its very nature is a ſtrong confirmation of this fact. It is not an aggregation of aſhes and ſand; a mixture of fragments of ſhoerls, feltſpars, and lavas decompoſed, and rendered earthy, and faſtened together by the action of the water, becoming ſo hard as to be cut into pieces proper for building, as is the caſe with many other tufas; but it is merely an argillaceous earth, reſembling, from its ſoftneſs, the hardened mud of rivers. Its colour is a dull grey, its ſtructure ſomewhat granular, and ſo yielding that it may be crumbled and pulverized between the fingers. It is light, adheres ſlightly to the inſide of the lip, emits a feeble argillaceous odour, and, when immerſed in water, greedily imbibes it in every part.

In the furnace it firſt acquired a reddiſh brown colour, and afterwards the black colour of iron. It became ſo hard that it gave ſparks with ſteel, without however vitrifying, except that its ſurface aſſumed a kind of vitreous varniſh.

The depth of this tufa is different in different parts of the mountain. In ſome places it is ſeveral feet deep, in others but a few, and in others there is ſo great a quantity of it that, notwithſtanding the excavations made in it by the rains, I was unable to aſcertain its depth. But in every place where I could diſcover the bottom, I obſerved that it reſted on a bed of pumices, partly pulverized, and partly in detached pieces approaching to the globoſe form. They belong to the claſs of the lighteſt of theſe ſubſtances. It appears, therefore, indubitable, that theſe pumices had been thrown out of the burning mouth of ſome volcano, before the flowing of the tufaceous current.

This tufa preſented a very unexpected phenomenon. On breaking it, its fractures exhibited ſmall black particles, which were diſtinctly recognized to be true coal, from their blackneſs, lightneſs, dryneſs, the facility with which they broke, and their ſmall degree of hardneſs. Some of them, likewiſe, when expoſed to fire in the open air, fumed, and became red hot; others emitted a little flame. The latter had not been perfectly reduced to coal, as the fibrous parts of the wood were ſtill to be ſeen. Theſe coals were ſmall cylinders from two or three lines in length to twelve or fourteen, and of proportional thickneſs. They appeared to have appertained to branches of trees or ſhrubs; they are buried in the tufa at various depths, and are found, though thinly ſcattered, through its whole extent.

This fact, never before, to my knowledge, obſerved by others in volcanic tufas, might induce us to imagine that the two methods, the humid and the dry, had here been combined; and that the watery ſlime when it flowed down the mountain, had been penetrated

netrated by the fire in ſuch a manner that it had inflamed, and converted into coal, the vegetables it met with in its way. This explanation is certainly not free from difficulties, as the reader, no doubt, already perceives; it therefore may appear more probable that the earthy inundation had involved, and carried with itſelf, theſe carbonaceous ſubſtances, which exiſted previous to its eruption, and which derived their origin from a ſhower of ignited matter having burned, but not entirely conſumed, the few plants which feebly vegetated on the declivities of the mountain.

It has been already ſaid, that the rapid deſcent of the rain-waters on that part of the mountain which leads to the ſtoves, has corroded the tufa to a great depth; and it is in the middle of theſe corroſions that we meet with various volcanic bodies, which, together with others lying in the public road, merit well to be deſcribed.

Firſt, we find pieces of enamel of every ſize, which, though they are ſmooth without, when broken, have, within, an angular fracture. Their colour is a pale blue; they have no great brilliancy, nor are they very hard, as they fly in pieces when ſtruck againſt the ſteel. The cauſe of the want of hardneſs in this enamel, may be aſcribed to the fiſſures, of which it is full; and theſe, perhaps, are to be attributed to the pieces of enamel being red-hot when they fell into the tufa not yet dry. The feltſpars it contains have the ſame crack, and probably from the ſame cauſe.

In the ſame places is found another kind of enamel containing a great number of ſmall bodies, which I will not abſolutely affirm to be garnets, becauſe I was not able to analyze them in the humid way; but their external characters, together with the proofs furniſhed by the dry way, almoſt induce me to conclude them ſuch. In all my volcanic reſearches I have never met with any ſimilar. In general they have a bulbous figure, and are of a blackiſh colour, which in ſome inclines to a red. Their ſurface is ſmooth and ſhining, their recent fractures lamellar, perfectly vitreous, and will cut glaſs. The largeſt are about three lines and a half in thickneſs, and are opake; the ſmalleſt, about the third part of a line, and are ſemi-tranſparent. They give ſparks with ſteel, and melt in the furnace into a black and ſcoriaceous enamel. Theſe characters, taken together, certainly give them a great reſemblance to garnets: I ſhall not therefore heſitate to claſs them with that ſpecies of ſtone; as their not being cryſtallized is of little importance, ſince we know that there are alſo amorphous garnets.

While employed in the examination of theſe ſtones, I reſolved to compare them with the Veſuvian garnets; for, in my excurſion to that volcano, I had collected ſeveral different ſpecies of them on Monte Somma, which is the ancient Veſuvius. I made ſeveral experiments on four of theſe, of which the following is the reſult.

The firſt ſpecies is found in a lava with a horn-ſtone baſe, of a yellowiſh grey colour, an unequal ſurface, and of a conſiſtence little different from earthy, from the great alteration it has undergone; not, as far as appears, from ſulphureous exhalations, but from the action of the atmoſphere. The garnets it contains have likewiſe ſuffered injury, having loſt a part of their native luſtre, and being eaſily broken or crumbled to pieces from the multitude of minute fiſſures and cracks in them. They, however, retain ſomewhat of the vitreous character. Their colour is between a white and a grey. At firſt view their figure appears perfectly globular; but on extracting them from the ſtone, their matrix, (which may eaſily be done,) and attentively examining them, they are found to have facets, though it is not poſſible to aſcertain the number of them, as many of the angles have been defaced by time. I ſhall only obſerve, that having broken one of theſe garnets into two equal parts, the perimeter of each half was octagonal. This fracture at the ſame time ſhewed the texture of the garnet, which is compoſed of

very thin circular leaves. Theſe garnets are of different ſizes, from four lines and a half to one ſixth of a line.

The furnace reduces the matrix-lava to a compact enamel of the colour of pitch; but it leaves the garnets untouched, which only become ſomewhat whiter, more vitreous, and more hard. The blackneſs of the enamel being a contraſt to the whiteneſs of the garnets, a great number of the latter become conſpicuous, which before were not viſible in the lava; and, notwithſtanding their extreme minuteneſs, they remain uninjured by the fire.

The garnets of the ſecond ſpecies are contained in a lava which has for its baſe a ſoft horn-ſtone. They are larger than the former, and entirely opake. They are white as ſnow, and more brilliant in their fractures than the preceding. Many of them are of a round figure, and manifeſtly ſhew a cryſtallization in various facets; which, however, it is impoſſible to number as they break in pieces if we attempt to extract them from the lava. Many others of them are of very irregular forms.

Several of this ſecond ſpecies of garnets incloſe within them ſmall priſmatic ſhoerls, of the colour and luſtre of aſphaltum, which probably pre-exiſted completely formed, and were taken into the moiſture from which the garnet derived its origin.

Theſe garnets are, likewiſe, infuſible in the furnace, though the lava is converted into a porous ſcoria.

The third kind is ſtrongly infixed in a heavy lava, which alſo has for its baſe the horn-ſtone, is of an iron-black, compact, but not ſufficiently hard to give ſparks with ſteel. The garnets, which are of a yellowiſh white colour, and ſome of them four lines in diameter, for the moſt part have clefts or fiſſures, but in ſuch a manner that in the recent fractures the ſurface reſembles a round polypetalous flower.

The furnace melted the lava, but not the garnets, which only acquired the red colour of copper.

The garnets of the fourth and laſt ſpecies have four-and-twenty facets, and are ſemi-tranſparent, white, and vitreous. Their matrix is a compact lava of a horn-ſtone baſe, which emits an argillaceous odour. In the furnace it changes into a black enamellar product, but the garnets remain untouched.

On comparing theſe reſults with others before detailed, we ſhall find that the ſtructure of the Veſuvian garnets, ſo far as it is vitreous and lamellar, is ſimilar to that of thoſe of Lipari; but that, when expoſed to the fire a difference is found between theſe two ſtones, the one eaſily melting in the furnace, and the other proving refractory.

Finding, therefore, that theſe four ſpecies of garnets were infuſible in the furnace, though continued in it for ſeveral days, I had recourſe to oxygenous gas (or dephlogiſticated air,) by the action of which they all melted, though ſlowly. When the matrix lava flowed like common glaſs, the ſmall pieces of garnet within it remained unchanged; but at length fuſed, though without incorporating with the lava, ſo as to form a homogeneous whole.

Thoſe chemiſts and naturaliſts, who, before me, have made experiments with fire on the Veſuvian garnets, have deſcribed reſults ſimilar to thoſe I obſerved. Bergmann ſays theſe garnets melt with the blow-pipe alone, but a vehement fire is neceſſary *. Sauſſure tells us, that a ſpotted lava *(lave à oeil de perdrix)* which he found on Monte Somma, acquired, after fuſion, a black vitrified ground, but that the polyhedrous grains of this lava remained unchanged in the moſt violent fire; and by polyhedrous grains it

* De Productis Vulcanicis.

is

is evident that he means what I and others have called garnets *. With reſpect to the action of oxygenous gas upon them, we may refer to Ehrmann, in his work on the Air of Fire. "The white opake garnet of Veſuvius," ſays this writer, "differs from garnets properly ſo called, in this, that it melts with extreme difficulty, (with the aſſiſtance of oxygenous gas is here to be underſtood,) and at length, after continual ebullition, becomes a maſs perfectly ſimilar to quartz, even in its fracture, and which crackles in like manner between the teeth."

This kind of ebullition I have obſerved in the four varieties of garnets above mentioned, when they were in a ſtate of fuſion. The firſt and third likewiſe produced two ſmall maſſes reſembling quartz, but thoſe of the ſecond and fourth variety were ſpongy. It is very poſſible that this author only made his experiments on one ſpecies.

Some learned naturaliſts are of opinion that the garnets of Veſuvius are improperly ſo denominated; firſt, becauſe they contain no iron; ſecondly, becauſe they fuſe with difficulty; and, thirdly, becauſe they differ in the proportionate qualities of their conſtituent parts from thoſe of true garnets. Theſe reaſons, however, do not appear to me ſufficient to exclude them from being claſſed with this kind of ſtones. It is true, that iron is uſually contained in garnets, but it is not eſſential to them; as has been obſerved by Bergmann, who, in tranſparent garnets found only $\frac{4}{100}$ parts of this metal. The abſence of iron, probably, therefore, renders them ſo difficult to fuſe. With reſpect to their conſtituent parts the Swediſh chemiſt (Bergmann) has obſerved, that the principal of theſe is ſilex, the next alumine, and that which is leaſt of all in quantity, lime. This analyſis agrees with that made by Achard on ſome of the pureſt Bohemian garnets; and ſuch a proportion of the conſtituent principles is ſufficiently ſuitable to that of the garnets of Veſuvius, in which Bergmann found about fifty-five parts of ſilex, thirty-nine of alumine, and ſix of lime. And though the proportion of the ſilex to the alumine is not entirely the ſame in both theſe ſtones, the difference is not ſo great, in my opinion, as to induce us to conſider them as two diſtinct ſpecies; as will appear by comparing the numbers 55 and 39, which expreſs the quantities of ſilex and alumine in the Veſuvian garnets, with the numbers 48 and 30, denoting thoſe of the ſame two earths in the Bohemian garnets, analyzed by the before-cited chemiſt of Berlin (Achard).

To return for a moment to the garnets of Lipari: theſe do not ſo tenaciouſly adhere to their baſe as we almoſt always find the feltſpars and ſhoerls; but, like other garnets, are implanted in it in ſuch a manner that they may be eaſily detached without breaking, leaving the exact impreſſion of their figure in the enamel. This enamel, which is compact, heavy, and of a grey cinereous colour, is found in detached pieces, both in the road and in the tufa; and is the firſt production which preſents itſelf, after leaving the city to proceed towards the ſtoves.

Continuing our journey ſtill further along this road, we find in it, and likewiſe within the tufa, very curious mixtures of a white argillaceous earth and black enamel; both of which are ſo mingled and kneaded together, that we can ſcarcely find a quantity of this earth of the ſize of a pea, which does not contain ſeveral particles of this enamel; and very few indeed are the pieces of enamel that contain none of this earth. It has an earthy odour, and adheres to the tongue.

In the ſame ſituations where this peculiar mixture is found, we likewiſe meet with an enamel containing garnets, ſimilar to thoſe above mentioned, but larger, and more approaching to a globular figure. It is remarkable that this enamel, in ſome places,

* Voyage dans les Alpes, tom. i.

forms

forms one whole with ſome pieces of lava of a horn-ſtone baſe, which alſo contains garnets.

I ſhall briefly diſtinguiſh four ſpecies of lava, each of a horn-ſtone baſe, which are met with, in detached pieces, on the road to the ſtoves.

The firſt has a fibrous fracture, the colour of iron, ſome appearance of poroſity, ſufficient hardneſs to give ſparks with ſteel, and the power to move the magnetic needle at the diſtance of a line and a quarter. It emits an earthy odour, and contains feltſpars.

The ſecond is of a black-grey colour, and, though compact, rather ſoft. Almoſt one half of it conſiſts of rhomboidal feltſpars.

The third only differs from the ſecond by being ſomewhat more compact, harder, and containing fewer feltſpars.

The fourth, which in ſolidity, weight, and hardneſs, exceeds the three preceding, has a black ferrugineous colour, an earthy fracture, adheres ſlightly to the tongue, and emits the uſual argillaceous odour. It moves the magnetic needle at the diſtance of half a line.

All theſe four kinds of lavas are changed, in the furnace, into vitreous ſcoriæ, but without the fuſion of their feltſpars.

Having mentioned theſe, it will be neceſſary to deſcribe ſomewhat more at length, another ſpecies of lava, which is enriched with a great number of extremely beautiful volcanic chryſolites.

This lava has for its baſe a ſoft horn-ſtone; it is of a dark brown colour, and unequal in its fractures on account of the fiſſures which ſeparate its parts. It is found in detached pieces, like the four preceding lavas, but theſe pieces are rare. It gives but few ſparks with ſteel, emits a ſlight argillaceous odour, and acts on the magnetic needle at the diſtance of a full line. In conſequence of its numerous fiſſures it is rather light, and when ſtruck with a hammer is ſomewhat ſonorous. I omit to mention ſome ſmall ſcales of feltſpar incorporated in it, and proceed to the examination of the chryſolites.

Theſe, when ſituated in the external parts of the lava, which have ſuffered by the influence of the atmoſphere and elements, readily attract the eye by their lively colour, which is between a green and a yellow, but in the recent fractures they ſhine with much more brilliant colours. The moſt conſpicuous are the golden-yellow, and the fine graſs-green, with which ſometimes is mixed a fire-red, tempered with a tinge of purple. If theſe chryſolites are expoſed to the immediate light of the ſun, and viewed under certain angles, their colours become much more lively and bright. Many of them are amorphous, but ſome are quadrangular priſms. Their ſurface, in the fractures, ſhines with a glaſſy brilliancy, and is ſometimes ſmooth, and ſometimes rough, according as the plates of which the chryſolites are compoſed may have been broken. The ſmall fragments of them are angular and ſemi-tranſparent. Theſe chryſolites give ſparks with ſteel, and cut glaſs nearly like rock-cryſtal. The largeſt are not leſs than three lines and a half in length, but the ſmalleſt can ſcarcely be diſcerned by the naked eye. They are ſo firmly infixed in the lava, that only fragments of them can be detached.

The fire of the furnace, and that of the blow-pipe, not only will not fuſe theſe minute ſtones, but are unable to injure them either in their colours or texture. Oxygenous gas (dephlogiſticated air) alone diſcolours them, and melts them into a globule of a white colour, but without brilliancy.

Though

Though it was not known till the preſent time that Lipari afforded volcanic cryſolites, they had been before found in volcanized countries, as in Vivarais and Velay, by M. Faujas, and on Mount Etna by M. Dolomieu. But on comparing their chryſolites with mine, I find certain differences and reſemblances, which it will be proper to enumerate.

The chryſolites obſerved and deſcribed by M. Faujas, when examined with the lens, are found to be compoſed of an aggregate of arenaceous grains, more or leſs fine, and more or leſs adherent; ſcabrous, irregular, and ſometimes forming cruſts and ſmall ſandy ſcales; but for the moſt part having the appearance of angular fragments united by inſertion into each other.

The chryſolites of Lipari have nothing of this nature in their ſtructure. I broke ſeveral of them, and examined their fragments with the microſcope; but they never appeared to me granular, but always ſmooth and glaſſy. The moſt minute parts of theſe chryſolites exhibited the ſame aſpect they preſented when whole.

I muſt not omit to mention another difference of importance, which is, that the chryſolites of Lipari are only a few lines in length, whereas thoſe deſcribed by M. Faujas are ſometimes ſeveral pounds in weight.

They agree, however, with mine in their infuſibility in an extremely active fire; for thoſe on which he made his experiments reſiſted the fire of common furnaces, however violent and continued it might be, and could not be reduced to a ſtate of fuſion but by the aid of oxygenous gas.

The colours of both are ſometimes the ſame. I ſay ſometimes, for M. Faujas informs us, that ſeveral of his chryſolites were only of one colour; a green, or topaz-yellow.

The traits of reſemblance and difference between the Lipareſe and Etnean chryſolites will be ſeen by comparing the deſcription I have given of the former with what M. Dolomieu ſays of the latter, in the work I have frequently cited. He tells us, that ſome of the chryſolites he found there are amorphous, others cryſtallized in tetragonal or hexagonal priſms, ſometimes with an hexagonal pyramid; that their fracture is partly conchoidal, and partly lamellar; that they are harder than quartz; that they are more or leſs tranſparent; that their colour is a greeniſh yellow, with various tinges, and that they are fuſible in a ſtrong fire. He does not give their ſize, but they cannot be large; both becauſe he calls them *grains*, and becauſe thoſe which I obſerved in ſome lavas of Etna were very minute.

I have deſignedly called the chryſolites of Lipari *volcanic* chryſolites, not merely becauſe they are found within a lava, but to preſerve a diſtinction between them and a gem of that name; ſince I know that ſome reſpectable authors are of opinion, that the volcanic ſtones which, from their greeniſh yellow colour, and other circumſtances, reſemble that gem, and therefore are called chryſolites by the volcaniſts, differ from them entirely in their component parts, and ſeveral of their external characters. To this opinion I can make no objection, though in deſcribing theſe ſtones I have adopted the name by which they are uſually known. It muſt be obſerved, however, that ſome of their properties ſhew they cannot be claſſed as ſhoerls, among which ſome naturaliſts generally place the chryſolites of volcanos.

It remains likewiſe to ſpeak of a ſtone which was the laſt of the products that offered themſelves to my obſervation, as I proceeded along the declivity of the mountain leading to the Stoves.

The ſtone is a porphyry, the baſe of which is the petroſilex, containing feltſpars with ſeveral faces, and brilliant in the fractures, and blackiſh irregular ſhoerls. The baſe has the red colour of brick. It is found in detached maſſes, ſome of which weigh ſeveral thouſand

thouſand pounds. It is compact, and ſcaly in the fractures. The pieces broken from it are irregular; the thinneſt are tranſparent at the edges; and they give ſparks moderately with ſteel. The colour of the baſe has given the feltſpars a reddiſh tinge, as we ſee in certain oriental porphyries.

But has this porphyry ſuffered fuſion, or is it in its natural ſtate, and at moſt calcined when it is ejected by the volcano? I cannot pretend poſitively to decide; but I incline to the latter opinion more than to the former, ſince an alteration is viſible, even in the internal parts, which appears to be the effect of a true calcination.

In the furnace the ſubſtance of this rock becomes ſoft, but does not fuſe: the feltſpars remain unchanged, but the ſhoerls are vitrified.

The ſpacious and deep excavations made in the tufa by the rain-water, and which extend from the bottom of the mountain to the ſummit, afforded me an opportunity to diſcover and examine the ſtony ſubſtances I have deſcribed; for it was only in thoſe excavations that they were viſible: in every other part nothing appeared but the naked ſuperficial cruſt of the tufa. None of theſe ſubſtances are diſpoſed in currents; they are all detached; and thus render it probable that they fell into the tufa after having been thrown up into the air in volcanic ejections.

When we have reached the ſummit of the mountain, an ample plain opens, formed of the ſame tufa, but become earthy, in which corn is ſown, and a few vineyards are planted. Here we find numerous pieces of ſhining glaſs, which is ſemi-tranſparent, of a blackiſh colour, and ſome of the fineſt and pureſt to be found in Lipari. As I wiſhed to diſcover the origin of this ſubſtance, I cauſed the place where it is found to be dug into. The tufaceous earth is there about three or four feet deep. The pumices lie immediately under it, and among them this glaſs is found in conſiderable quantities. It has probably been turned up, and brought to the furnace, by the plough, or other ſimilar inſtruments uſed to prepare the earth for ſowing the corn.

Beyond this plain there is a gentle deſcent of about two hundred feet in length, at the end of which are the Stoves. Whatever prepoſſeſſion in their favour the traveller may have conceived from hearing ſo much of them, he loſes it the moment he ſees them. They form a group of four or five caves, more like to the dens of bears than the habitations of men; and which exhibit much leſs of art than the edifices framed by the beaver. Every cave has an opening at the bottom, through which the warm and humid vapours enter, and another in the top through which they paſs out. I entered one of theſe, but was unable to remain long in it, leſs from the heat, for the thermometer ſtood at only 48¾ degrees, than from I know not what of a ſuffocating nature which the air had in it. Theſe ſtoves now retain little more than their name, and are nearly deſerted. In fact, though they ſtill retained their virtue, and were efficacious in the cure of various diſorders, how would it be poſſible to make uſe of them, when they are deſtitute of every convenience neceſſary to that purpoſe?

When M. Dolomieu viſited them, the whole ground on which they ſtand was penetrated with hot vapours, which, under the form of a thick ſmoke, iſſued from ſmall apertures of about an inch, or two inches, in diameter. When I was there, circumſtances were much changed, as uſually happens in volcanos, where the preſence of fire manifeſts itſelf ſometimes more and ſometimes leſs. There was then only one aperture, of about an inch in diameter, from which from time to time iſſued a thin ſtream of ſmoke, with a ſtrong ſulphureous ſmell. Having enlarged this aperture, I found it ſurrounded by a ſmall quantity of ſoft ſulphures of iron (pyrites) generated by the union of iron and ſulphur. The Abbate Trovatini, whom I have cited in another place, likewiſe atteſts, that at certain times ſeveral ſtreams of ſmoke aſcended round the ſtoves; and I ſhall add, that beſides the ſtrong ſmell of ſulphur, which I perceived on approaching

ing the place, the ground became hot, and the fetor increaſed, on digging to about the depth of a foot: from which it may be concluded, that under the ſtoves and the ground adjacent, ſome remains of ſulphureous conflagration ſtill continue *. The ſtoves and the warm baths, of which we ſhall ſpeak below, are the only places in the whole iſland where any ſigns are to be found of as yet unextinguiſhed volcanos.

M. Dolomieu, after having deſcribed the ſtoves of Lipari, proceeds to ſpeak of the alterations cauſed by the ſulphureous-acid vapours on the lavas of this place, remarking that all of them, beſides having become ſofter and lighter, have loſt their primitive colour, and aſſumed a white tinge, mixed with yellow, red, violet, and other colours, which the oxides of iron uſually produce. He obſerves likewiſe, that they are coated with a thick cruſt of ſulphates of lime (ſelenite or gypſum), which ſulphates penetrate likewiſe to the internal parts, and that ſome lavas are covered with that kind of iron ore which is called ſlimy (*fangoſa*) or bog ore. He then very ingeniouſly explains in what manner, by means of a combination of the ſulphuric acid with different earths, the lavas have become lighter and variouſly coloured.

As I viſited the ſtoves three ſeveral times, and examined with great attention the lavas that had ſuffered alteration by the action of the ſulphureous acid, I am enabled to add, to the obſervations already given, ſome others which I believe to be new, and which I ſhall here briefly ſtate.

It was an object equally important and curious to aſcertain to what kinds of lavas ſtill remaining in the ſtate in which they were left by the fire, thoſe belong which we now ſee decompoſed by acids; and as the obſervations I had made at Solfatara di Pozzuolo and other places, had taught me that the decompoſition diminiſhes, the deeper it enters into the ſubſtance, I conceived that the moſt proper means to obtain this knowledge would be, to break fragments of the lava, and examine the internal parts, to find how far the decompoſition had penetrated. The greater part of the decompoſed lavas of the Monte della Stufe are externally of a reddiſh white; and ſome are of a blackiſh colour. I firſt examined the latter; and preſenting their ſurface to the full light of the ſun, I diſcovered ſomething of a brilliant appearance which invited me to examine it with the lens. It proved an aggregate of innumerable globules of hæmatitic iron, which beautifully cover the ſurface of theſe lavas.

I detached a conſiderable number of theſe globules, and found that on trituration they aſſumed a red colour, which is the property of the dark hæmatites. This was therefore a pure martial oxide, depoſited here and formed into globules; and under that aggregate lay another oxide of red, but earthy iron. The lava ſtill deeper was of a white colour, interſected with parallel ſtreaks of a reddiſh black, or lightly ſhaded with a yellowiſh tinge.

Theſe lavas are ſoft, light, and compact: they adhere to the tongue, have the conſiſtence of clay, but do not emit its odour. They ſeem to be ſimple lavas, no extraneous bodies appearing in them. It is obſervable that every fracture is conchoidal; and that when ſtruck they cauſe a ſound ſimilar to that of ſome kinds of petroſilex, which has induced me to ſuſpect they belong to that ſpecies of ſtone: a ſuſpicion which is confirmed by examining deeper within the fractures; ſince at the depth of two feet, or

* It has been ſhewn, in Chap. XIII., that the decompoſitions of different products of Stromboli and Vulcano do not derive their origin from the muriatic acid, to which, according to M. Sage, the principal alterations of volcanic ſubſtances are to be aſcribed, but to ſulphureous-acid exhalations. The decompoſitions in the environs of the ſtoves of Lipari, I am of opinion with M. Dolomieu, are to be attributed to the ſame cauſe, the exiſtence of which is ſufficiently proved by the remains of ſulphureous fumes, and the quantity of ſulphates of lime, which I ſhall preſently have occaſion to deſcribe.

thereabouts, a grey colour takes place of the white, and the other external appearances diminiſh; the lavas begin to aſſume a ſiliceous aſpect, and give a few ſparks with ſteel. Still deeper we perceive without the leaſt doubt that theſe lavas have a petroſiliceous baſe, and contain a few ſhoerls, which do not appear in the decompoſed parts, probably becauſe they are themſelves decompoſed.

Theſe obſervations, which were made on ſome lavas of a black colour on the ſurface, are likewiſe true of ſeveral others, which externally are of a reddiſh white. The appearances in them are eſſentially the ſame. The red colour in the internal parts inſenſibly vaniſhes; the grey by degrees ſucceeds the white, which, ſtill deeper, acquires a luſtre, the lava at the ſame time becoming harder, and at length diſtinctly exhibiting all the characters of the petroſilex.

One of theſe lavas, ſtreaked with white and a clear red like that of the peach-flower, is ſpotted on the ſurface with points almoſt pulverulent. Theſe are decompoſed felt-ſpars, though they ſtill retain a reſidue of cryſtallization. This lava has been more changed by the acids than the others, being ſofter, and even pulverable; though at the depth of two feet it is hard, heavy, of a black-grey colour, evidently has a petroſiliceous baſe, and contains feltſpars which are perfectly entire.

In deſcribing the variouſly decompoſed lavas of Solfatara, we have ſeen that feltſpars are a kind of ſtones which ſtrongly reſiſt the action of acids. It frequently happens that their baſe is completely decompoſed, while they are ſcarcely in the leaſt changed. As therefore in the preſent lava the feltſpars are decompoſed equally with their baſe, we muſt be convinced that the ſtrength of theſe acids muſt have been very great. In general theſe lavas at their ſurface are ſoft, like dough, and almoſt ſaponaceous; characters that uſually accompany theſe decompoſitions.

We muſt not omit to notice a lava of the breccia kind, the baſe of which is likewiſe petroſilex, and in which the action of the acids has extended only to the depth of a few inches. This baſe, even near the ſurface, has not entirely loſt its natural colour, reſembling that of iron, and in it are incorporated irregular ſmall maſſes of whitened and pulverulent lava. Theſe, therefore, have yielded more to the decompoſition than the baſe that contains them. At a greater depth we find them unaltered; and they are then only fragments of lava of a horn-ſtone baſe.

Though many of the lavas of the ſtoves of Lipari have ſuffered by the ſulphureous-acid vapours, there are ſome that are entirely unchanged. I ſhall only deſcribe one, which is ſo well preſerved that it appears to have been produced but yeſterday by the volcanic gulph. If we ſcale the ſurface of it, where it projects in large maſſes from the earth, it appears of a dark iron colour, has an extremely compact grain, and a conchoidal fracture. The ſcales at the edges are ſharp and cutting, and give very lively ſparks with ſteel. It is one of the heavieſt and hardeſt among the lavas, and puts the magnetic needle in motion at two lines diſtance. It has for its baſe the petroſilex, containing very brilliant feltſpar needles.

This lava, therefore, has not been in the leaſt affected by theſe acids, not probably becauſe it was able to reſiſt their ſtrength, but becauſe it was not expoſed to their action. The places under which the conflagrations of a volcano burn, have numerous apertures and fiſſures through which iſſue ſulphureous fumes; and when lavas are ſituated around or within theſe, they will be more or leſs affected by them. But in the ſame tracts of ground there are more places than one impenetrable to theſe fumes, and there, in conſequence, the lavas ſuffer no other alterations than thoſe produced by time. Theſe interrupted exhalations of ſulphureous vapours I have obſerved at Veſuvius, Etna, and Stromboli, and have noticed them before in my accounts of theſe volcanos. It is only

to be remarked that, at the ſtoves of Lipari, the quantity of decompoſed lavas being very great, and extending for the moſt part to a great depth, the ſulphureous-acid vapours muſt have there iſſued in extraordinary abundance, and at the ſame time have been of long duration. The intenſity of them, and their conſequently greater efficacy, might indeed have ſupplied the place of long continuance; for I have obſerved, that when the lava of Veſuvius flowed before my eyes, and ſeveral of its lateral branches had ceaſed to move, two of theſe, which had been penetrated by a thick cloud of the fumes uſual there, were already half decompoſed, though they were evidently parts of that current which but a few months before had been diſgorged by the ſide of the mountain. Laſtly, according to the different qualities of the lavas, and as they may be compoſed more or leſs of calcareous, argillaceous, or martial principles, all combinable with ſulphureous acids, a greater or leſs decompoſition will be produced.

The different degrees of decompoſition in lavas render them ſometimes more, and ſometimes leſs ſuſceptible of fuſion in the furnace. The parts not decompoſed will fuſe. A beginning decompoſition renders them ſtubborn, and when it is complete, they entirely reſiſt the fire. The cauſe of theſe differences appears to me ſufficiently evident. The more earths are pure the more they reſiſt fuſion. All thoſe hitherto known are infuſible, except in very violent fires. Their mixture facilitates their fuſion, as they thus become a reciprocal flux; and we know that fuſion readily follows, when ſilex, alumine, and lime are mixed in the proportion of 3, 1 and 1. There was no lava on which I made experiments, in which I did not find theſe three kinds of earth; and though they might not be combined exactly in this proportion, their combination was yet ſuch as to render almoſt every lava fuſible in the furnace. The lime which, in the dry way, acts as a flux to the ſilex, is in a great degree diminiſhed in the decompoſition of lavas, forming ſulphate of lime by its intimate union with the ſulphuric acid; and hence we have one impediment to the fuſibility of theſe lavas. The diminution of the alumine, ariſing from its combination with the above mentioned acid forming ſulphate of alumine, which is afterwards detached and carried away by the rains *, will likewiſe be another obſtacle; to which we may add a third, which is the loſs of the iron, likewiſe an aid to fuſion.

Theſe ſulphates, which for the moſt part accompany lavas, preſent a pleaſing ſpectacle to the naturaliſt. Their colours are infinitely varied. Thoſe which are moſt prominent to the eye, are the roſe colour, violet, and orange, and they are the more conſpicuous becauſe they are generally placed on a white ground.

I have obſerved three kinds of ſulphate of lime, independent of ſeveral varieties which I omit. The firſt is compoſed of thin plates, parallel to each other, cloſely united, brilliant, compact, and opake. They form ſtrata or beds of different thickneſs, ſometimes more than a foot, and theſe ſtrata are eaſily detached from the lavas to which they adhere.

The ſecond ſpecies is filamentous, having either parallel or ſtellated filaments, in which latter caſe the filaments form a kind of pyramids, which have their apices in one common centre, and their baſes at the circumference. We find ſome very large pieces of this kind, formed by the aggregation of theſe pyramids.

The third ſpecies is compoſed of thin and ſhining plates, ſomewhat elaſtic, tranſparent, very ſoft, and forms the indeterminate cryſtallization of ſulphate of lime called

* To prevent any ambiguity, it may be proper to repeat what I have ſaid in Chap II., that the pretended tranſmutation of ſilex, or any other earth, into argillaceous earth, in the decompoſition of lavas, has no exiſtence; ſince, in this caſe, that earth likewiſe is diminiſhed, from the cauſes alleged above.

ſpecular ſtone; but this ſpecies is rare, and its cryſtals are always very ſmall. In theſe caſes the determinate and primitive cryſtallization of this neutral earthy ſalt is always wanting.

It is therefore evident that this variety of colours, ſuch as yellow, red, or violet, exhibited by the decompoſed lavas, is a conſequence of the iron pre-exiſting in them; which being, if not decompoſed, at leaſt greatly altered, by the ſulphureous acids, is variouſly modified, and aſſumes this diverſity of hues. The ſame cauſe operates in like manner on the ſulphates of lime, formed by the combination of the ſulphuric acid with the lime, which is laid open by the deſtruction of the adheſion of the conſtituent principles of the lavas, and variouſly coloured by the oxydated metal. The white colour of the decompoſed lavas then, it is evident, is produced by the loſs of their iron; which agrees perfectly with experience, ſince, where the decompoſition has taken place, the lavas are incapable of moving the magnetic needle, whereas they conſtantly produce motion in it, ſome at the diſtance of two lines, and ſome at more or leſs, in the parts not decompoſed.

I ſhall conclude my obſervations on the productions of the ſtoves of Lipari, with ſome intereſting remarks relative to ſeveral different ſpecies of zeolites, which I diſcovered in their vicinity. I ſhall deſcribe them ſeparately with their matrices.

Firſt ſpecies. The matrix containing this zeolite is a lava of a horn-ſtone baſe, of a dark-brown colour, granular in the fractures, and which ſcarcely gives ſparks with ſteel. It ſhews no indication of having ſuffered by the ſulphureous acids. It is full of ſmall long cavities, all in one direction, and which probably were produced when the lava was in a fluid ſtate. It is in theſe cavities that this ſpecies of zeolite is found. At firſt view it appears rather to be a ſtalactical calcedony, having the form of a cluſter of grapes. It is of a white pearl colour, inclining to a light blue, and gives ſome ſparks with ſteel. It has a ſiliceous fracture, and a degree of tranſparency. Three properties, however, eſpecially characteriſe it: firſt, that it forms a jelly with mineral acids; ſecondly, that it flaſhes or blazes at the moment of fuſion; and, thirdly, that it bubbles, and as it were boils, when in fuſion: and though neither of theſe characters excluſively appertain to the zeolite, all the three together ſufficiently fix the nature of this ſtone, which muſt be referred to the claſs of amorphous zeolites. The cluſtering grains may be extracted entire, as they attach to the lava but in a few points. The largeſt extend to five lines in length, by two or three in breadth. The figure which I have called cluſtering, is the moſt uſual in this ſpecies of zeolite; though ſome are only oblong globules, of the ſame ſize with that of the ſmall cavities which contain them. They are, however, by no means found in every cavity; for out of a hundred of theſe cavities, ninety contained no zeolite. This ſpecies is contaminated with a pulverulent, orange-coloured oxyde of iron.

The blow-pipe with difficulty melted it; and ſeveral ſeconds were required for its complete liquefaction, even with the aid of oxygenous gas. It then changed into a ſnowy-white enamel, full of bubbles. It has a lucid brightneſs when it begins to melt, and boils and bubbles up when in actual fuſion.

Second ſpecies. This is found in ſome pieces of the former lava, but its characters are different from thoſe of the preceding ſpecies. It coats over many of the cavities before mentioned with a thin cruſt, thus forming geodes, which, however, are not cryſtallized internally. This zeolite, which inclines to a white colour, is more tranſparent than the other, and, from its hardneſs, cuts glaſs almoſt like rock cryſtal. The mineral acids have no effect upon it, not even when pulveriſed, though they convert the former ſpecies into a kind of jelly. When melted with the aid of oxygenous gas, it emits a thin brilliant blaze, and is changed, with ebullition, into a vitreous and white globule.

It

It is not unuſual to find within theſe zeolitic geodes, plates of very tranſparent ſulphate of lime. A hundred grains of this pulveriſed were put into ſix hundred of diſtilled boiling water. A ſolution was obtained, and the oxalic acid precipitated the lime.

Third ſpecies. This conſiſts of ovoid globules, externally dirty, from an earthy coating, but which internally are extremely white. In the fractures we perceive that they conſiſt of a number of opake groups of fibres, ſtriated, ſilky, and ſhining, which diverge from the centre to the circumference of the globules, and thus form ſo many inverted cones. Theſe globules, ſome of which are more than four lines in diameter, perfectly fill the cavities of an argillaceous, light, extremely friable lava of a deep grey colour. Every cavity, however, does not contain a zeolite of this conformation: in ſome we find zeolitic ſtones with ſeveral facets, but ſo confuſed that the preciſe configuration of the cryſtals cannot be diſtinguiſhed. On attentive examination, they evidently appear to be formed of the ſame zeolitic ſubſtance, which, when it occupied the whole ſpace of the cavity, took the conformation of thoſe fibrous groups that have externally a globoſe figure; but when a part of this ſpace remained empty, it cryſtallized more or leſs. Theſe zeolitic ſtones always have in the middle a ſmall empty ſpace, where they are cryſtallized, forming a number of very minute geodes.

The blow-pipe preſently melts this third ſpecies, and with ebullition; a phoſphoreſcence precedes the fuſion, and the pearly globule which is the reſult, is a ſemi tranſparent glaſs, abounding in bubbles. If this globule be broken, which requires rather a ſmart blow, the ſharp angles of the fragments will cut deep into glaſs.

This zeolite, ſoon after it has been put into acids, attaches to the ſides of the containing veſſel in the form of a cruſt, which cruſt preſently reſolves itſelf into a tranſparent tremulous jelly, ſimilar to that of hartſhorn.

Fourth ſpecies. The lava which contains this zeolite is of a horn-ſtone baſe, and forms two ſpecies, at leaſt two varieties; the one of which is glanular, rough to the touch, and extremely friable; the other has a kind of ſoftneſs, a fine grain, and greater ſolidity. In colour, however, which is a grey, and in their argillaceous odour, both theſe varieties agree. This lava contains a multitude of zeolitic globules, from half a line to an inch in diameter. On breaking them a vacuity is found within them, thus forming geodes of a cryſtallization more or leſs perfect. Wherever the zeolitic ſubſtance has been too confined in the cavity of the lava, the cryſtallization is extremely imperfect, in conſequence of the priſms being half-formed and confuſedly intermingled; but where that ſubſtance had a larger ſpace to develop itſelf in, the priſms are no longer ſo indiſtinct; many of them at leaſt are found to incline to a tetrahedral figure; and where the cavities of the lava have afforded a ſtill greater ſpace to the zeolitic matter, it has cryſtallized in tetrahedral priſms, of a diſtinct conformation. Every priſm has therefore four faces diſtinctly ſeparated. In ſome few places theſe priſms are terminated by a tetrahedral pyramid. Many of them are of a milky whiteneſs, and theſe are ſemi-tranſparent; but others have a tranſparency almoſt equal to that of quartzoſe cryſtals. A ſingle cavity ſometimes contains ſeveral ſcores of ſuch priſms, while another ſhall contain but very few.

The blow-pipe eaſily melts theſe geodes with the uſual phenomena of ebullition and phoſphoreſcence, and the glaſs which is the reſult of the fuſion is ſimilar to that of the zeolite of the third ſpecies. A ſimilar jelly is likewiſe produced from it, and with equal promptneſs, in acids, except that it has a leſs degree of viſcoſity.

Fifth and ſixth ſpecies. Theſe two ſpecies of zeolites are contained within an argillaceous lava, of a dark-grey colour, light, and of an earthy conſiſtence: they both merit to be diſtinctly deſcribed. The firſt ſpecies conſiſts of a great number of ſmall ſpheres,

white as ſnow, each occupying a cavity in the lava, and varying in ſize, the ſmalleſt being ſcarcely one-third of a line in diameter, and the largeſt more than three lines. The ſurface of theſe ſmall ſpheres is not ſmooth, but ſomewhat rough, from an infinity of points which, viewed through the lens, are diſcovered to be ſo many minute tetrahedral priſms, diſtinctly defined. On breaking the ſpheres we perceive that the priſms are continued within them, and, becoming thinner, proceed to the centre; or, to ſpeak more properly, we find that the ſpheres are only the reſult of a number of priſms joined together lengthwiſe. The portion of the priſms that is immerſed within the ſpheres is opake; but that part which projects out has a degree of tranſparency. It is to be obſerved, that though the greater number of theſe minute ſpheres are perfectly ſolid, many of them have a round vacuity at the centre, ſometimes extending to one-tenth part of the whole ſphere.

This zeolite is the ſofteſt of all the ſpecies hitherto enumerated, and may be ſcraped or cut with a knife.

The ſixth and laſt ſpecies is one of the moſt beautiful zeolites hitherto diſcovered by naturaliſts. It conſiſts of minute cryſtals, extremely clear and bright, which, having facets in every part, vividly reflect the light, and ſparkle like ſo many diamonds. Theſe are very numerous in the cavities of the ſame lava; but are unequally diſtributed, as ſome cavities contain but one of theſe cryſtals, while others have two, and others three, though the latter are rare. The largeſt do not exceed a line, and the moſt minute are ſcarcely a quarter of a line. While they remain in the lava, it is not eaſy to examine them as might be wiſhed; but many of them may be extracted without injury, and viewed in every part with the lens at leiſure. We then perceive that theſe zeolites, where they reſt on the lava, are flat; but in their upper part incline to a globoſe figure; and that there their cryſtallization is apparent: that the *iſolated* cryſtals, I mean thoſe which in their formation grew without attaching to the other cryſtals, have eighteen facets, for the moſt part pentagonal, or tetragonal, but never triangular: that theſe iſolated cryſtals are extremely rare; the greater number being *aggregated*, that is, confuſedly heaped upon each other in their formation: that, laſtly, though many of them may compare in clearneſs with the pureſt rock cryſtal, they are yet inferior in hardneſs, as they with difficulty cut glaſs.

I at firſt ſuſpected that theſe zeolites were a ſimple modification of the fifth ſpecies, which, wherever it had a free ſpace, had formed itſelf into theſe brilliant cryſtals, either iſolated or aggregate. But this conjecture was not confirmed by obſervation. It frequently happens that the white minute ſpheres which form the fifth ſpecies, occupy only one half, or even leſs, of the containing cavities, without ever taking the form of the ſixth ſpecies; but it is conſtantly to be obſerved that the tetrahedral priſms project farther beyond the convexity of the ſpheres, and have a greater tranſparency. They muſt therefore be conſidered as two diſtinct ſpecies.

This difference is ſtill more confirmed by the action of fire and acids. The latter do not act, at leaſt ſenſibly, on the ſixth ſpecies, though they reduce the fifth to gelatinous flakes or tufts. The fire of the furnace, in half an hour, converts the cryſtals of the ſixth ſpecies into globules of extremely tranſparent glaſs; whereas it only ſoftens in that time the minute ſpheres of the fifth, which require a fire of much longer continuance for their complete liquefaction; and the globule which then reſults is an opake glaſs, of the colour of milk. Both, however, have the property which is uſually common to zeolites; I mean that of phoſphoreſcence at the moment of fuſion, as may be ſeen by employing oxygenous gas.

After

After having made theſe experiments on the zeolites of Lipari, I was induced to examine one of thoſe of Iceland, which have the character of being the moſt excellent for forming a gelatinous body. I certainly obtained from it very readily an extremely beautiful jelly; but not in the leaſt ſuperior to that produced by the third and fourth ſpecies. This foreign zeolite is very white, and forms a group of ſmall conical bundles, cloſely conglutinated, and interſecting each other in various directions; terminating, at their diverging extremities, in a multitude of irregular cylindrical needles. In the furnace it becomes inflated and conſiderably lighter, but does not fuſe. With oxygenous gas, a hard, milk-white enamel, full of bubbles, is produced.

If we compare theſe obſervations with the deſcriptions of other naturaliſts, we ſhall find that the zeolites of Lipari have a great reſemblance to thoſe of other countries; and it may be obſerved that the firſt ſpecies is very ſimilar to that of the iſland of Ferro, which Born has deſcribed in his *Lithophylacium*, and which he has compared to the ſtalactical calcedony.

The ſecond ſpecies, from its hardneſs, reſembles ſome cryſtallized zeolites of the iſles of the Cyclops of Etna, which, as M. Dolomieu has obſerved, and as I have ſince found by experiment, are little inferior in that quality to rock cryſtal.

The three other ſpecies do not eſſentially differ from ſeveral deſcribed by Wallerius, Born, Bergmann, Faujas, and others, and which are found in the iſland of Ferro, the Vivarais, and other volcanized countries. But the ſixth ſpecies appears to me new; at leaſt I have found no writer who mentions a zeolite, conſtantly cryſtallized with eighteen facets, as often as its cryſtals are detached; nor do I know that any zeolite has hitherto been diſcovered which is equally clear and brilliant.

It appears that the true figure of the zeolite is a cube; at leaſt, that it always affects that form where its cryſtallizations meet with no obſtacles. According to circumſtances it is more or leſs modified; and the tetrahedral priſms of the fourth or fifth ſpecies are probably one of theſe modifications. The firſt and ſecond are amorphous; but in the third we diſcern a beginning cryſtallization. One of theſe modifications may be ſeen in the ſixth ſpecies; and we know that there are zeolites of other configurations, as ſome with twenty-four facets, and others with thirty.

Some naturaliſts have affirmed that the whiteſt and pureſt zeolite of Ferro is the only one from which a tranſparent and white glaſs can be obtained. I find, however, the glaſs of the ſixth ſpecies preferable to it; for it has an aqueous colour, and its tranſparency is almoſt equal to that of quartzoſe cryſtal. I have found no zeolitic cryſtals, but thoſe of the iſles of the Cyclops, which have furniſhed a glaſs equal to this.

No mineralogiſt is ignorant that Cronſtedt was the firſt who diſtinguiſhed this ſtone from the carbonates of lime with which it was confounded, and made us acquainted with ſeveral of its qualities. He obſerved that mineral acids cauſed no effervescence with it, but ſlowly diſſolved it into a gelatinous body: and this ſlow diſſolution, and converſion of the zeolite into jelly, was afterwards confirmed by others; though experiments made on newly diſcovered ſpecies of this ſtone have ſhewn that more than one are not in any manner affected by acids, even when highly concentrated. From among ſix ſpecies of the zeolites of Lipari, we have ſeen that the third and fourth preſently form with acids a tranſparent gelatinous body; which is leſs completely characterized in the firſt and fifth; and not produced at all in the ſecond and ſixth ſpecies.

M. Pelletier has analyſed the zeolite of Ferro, and found that it is compoſed of 20 parts of alumine, 8 of lime, 50 of ſilex, and 22 of phlegm (or impure water). Other analyſes have been made of other zeolites, by the chemiſts Bergmann, Meyer, and Klaproth. The minute ſize of mine, and ſtill more the ſmall quantity I obtained of them, prevented

prevented me from making a ſimilar analyſis of them with the requiſite accuracy. I was, however, able to aſcertain that the ſecond and ſixth ſpecies contained ſilex in a greater proportion than it was found in the zeolite analyſed by Pelletier; which perhaps was the cauſe that theſe two ſpecies do not form a gelatinous ſediment; the ſuperabundance of quartzoſe earth not permitting the acids to extract the lime and alumine, and thus diſſolve the union of the conſtituent principles of the zeolite.

The gelatinous diſſolution of the zeolite is neither a quality found in every ſpecies, nor is it peculiar to it, ſince experience has ſhewn that it is common to other ſtones, the conſtituent principles of which are the ſame with thoſe of the zeolite, and combined in a certain proportion. This identity of principles, which in ſome ſpecies of ſtones affords, by means of the action of acids, the ſame gelatinous product, induced me to make an experiment, of which I ſhall here give the reſult.

The colourleſs garnets of Veſuvius contain, according to Bergmann, 55 parts of ſilex, 39 of alumine, and 6 of lime. As therefore I had collected a conſiderable quantity of theſe at Veſuvius, I determined to make experiments on them with acids, in the ſame manner I had done on the zeolites. But in the three firſt varieties which I poſſeſs, though I had firſt reduced them to powder, no gelatinous ſubſtance was produced. With the fourth I ſucceeded; though I did not make the experiment on the ſame garnets, for the attempt would have been in vain, but on others of the ſame ſpecies, which I have not mentioned, and which had been greatly ſoftened by the ſulphureous acids, though they retained their four-and-twenty facets. Theſe the nitric acid, after thirteen hours, reduced to a jelly, though not one ſo beautiful as that obtained from the zeolites. We may therefore conclude, that this aptitude to diſſolution was produced in the garnets by the alterations they had ſuffered; in conſequence of which the nitric acid, penetrating their internal parts, had acted on them as it acts in many zeolites.

It has been believed that zeolites appertain excluſively to volcanized countries, ſince they are moſt frequently found there; and my obſervations may appear to confirm this opinion. It however admits of no doubt that they are likewiſe often found in countries that exhibit no ſigns of volcanization; this having been inconteſtably proved by Cronſtedt, Linnæus, Bergmann and others.

It appears equally certain that the zeolites of volcanos do not derive their origin from fire, but are adventitious to thoſe places; not that they were pre-exiſtent to the volcanic eruptions, and taken up by, and incorporated with, the currents of lava, as a celebrated volcaniſt has ſuppoſed. They were no doubt, generated after the extinction of the conflagrations; when their conſtituent parts being depoſited by water in the cavities of the lava, and there combining by affinity, formed theſe ſtony ſubſtances, according to circumſtances, ſometimes amorphous, and ſometimes cryſtallized; in the ſame manner that we have ſuppoſed, and indeed proved, the beautiful quartzoſe ſtones to be formed in certain lavas on the ſhores of Lipari, not far from Vulcano. The zeolites now deſcribed, likewiſe, afford a proof in favour of this opinion, thoſe eſpecially the priſmatic cryſtals of which have for their baſe the ſides of cavities in the lavas.

I ſhall conclude theſe obſervations relative to zeolites, with the following enquiry concerning an hypotheſis adopted by M. Dolomieu.

That naturaliſt was of opinion that the zeolites of volcanized countries are only found in thoſe ſituations which have been covered by the waters of the ſea; and the arguments he adduces to prove this, appear to me ſufficiently convincing with reſpect to the multiform zeolites obſerved by him. But what ſhall we ſay of thoſe we have now deſcribed? I certainly did not neglect to make the moſt accurate reſearches on the ſpot. It has been already ſaid that theſe ſtones are found in the vicinity of the Stoves. The

firſt

firſt ſpecies is met with about two hundred feet before we arrive at them, on the road from the city of Lipari; the others are ſcattered at a greater diſtance, in the ſteep ſide of the mountain towards the ſouth. One certain proof that theſe places had anciently been waſhed by the ſea, would be the finding of the remains or impreſſions of ſea animals. Thus the above-mentioned French naturaliſt remarks that, at Etna, the lavas of the iſles of the Cyclops, and thoſe of the mountains of Trezza, which abound in zeolites, have certainly been covered by the waters of the ſea, ſince at the height of more than two hundred perches above theſe zeolitic lavas, immenſe quantities of ſea-ſhells are found. The ſame may, in like manner, be obſerved of the Vicentine volcanic mountains which afford beautiful zeolites, and alſo copious ſtores of marine remains. It is, however, certain that neither Lipari, nor any of the Eolian iſles, preſent us with any veſtiges of ſea animals or plants. I do not mean to ſay that this is a phyſical demonſtration that theſe places have never been covered by the ſea, ſince it is poſſible that the marine bodies its waters had left, may have been afterwards deſtroyed by cauſes which are not wanting in countries that, at various epochs, have ſuffered the action of fire; I ſhall only obſerve that we are thus deprived of one of the moſt convincing proofs of this ſuppoſed inundation; and I know not on what other we can rely, with reſpect to a country entirely volcanic.

That zeolites derive their origin from water and not from fire, is proved by the water of cryſtallization which is more or leſs abundant in them, and the numbers of them found in ſome provinces of Sweden, which have never been ſubjected to the action of fire. That this water has ſometimes been that of the ſea, the above-cited obſervation of M. Dolomieu will not permit us to doubt; but it has been proved that there are likewiſe inſtances of their having originated from freſh water; of which an obſervation by Bergmann may furniſh an example. He has remarked that a ſpring of warm water at Laugarnes, in Iceland, when it iſſues bubbling from the earth, leaves no ſediment of any kind, but depoſits it at the bottom of a channel by flowing through which it becomes cooler: and this ſediment is truly zeolitic, as has been proved by chemical examination *. The nature of this fact he ſatisfactorily explains as follows: "While the water is very warm, it holds the zeolitic matter in diſſolution; but afterwards becoming cold, can no longer ſupport it, ſo that it precipitates and forms this ſtalactical concretion." This excellent obſervation will account for the frequency of zeolites in many volcanos, ſince the water, whether ſalt or freſh, being ſtrongly heated by the ſubterraneous fires, diſſolves the zeolitic ſubſtances, which it afterwards depoſits within the lava, where they cryſtallize, or remain amorphous, according to circumſtances.

When the traveller has arrived at the ſummit of the Monte della Stufe, he has reached, in that part, the confines of the iſland; for he ſuddenly perceives the ſea, about four hundred and ſixty feet below him, as near as the eye can meaſure. Taking his way to the ſouth, he then diſcovers ſeveral warm ſprings, which ſupply the Baths of Lipari, of equal antiquity with the Stoves, but like them now almoſt forſaken; and, proceeding in the ſame direction, meets again with a prodigious quantity of decompoſed lavas ſimilar to thoſe of the Stoves, exhibiting the ſame varying colours, and coated in different places with cruſts of ſulphate of lime.

When the naturaliſt conſiders, and unites in his mind, theſe prodigious aggregations of decompoſed lavas, which occupy an area of ſeveral miles, he will, no doubt, be aſtoniſhed to find there is any volcanized country in Europe, in which the ſulphureous vapours, iſſuing from ſubterranean conflagrations, have acted through ſuch an extenſive

* Opuſc. Vol. III.

ſpace. Thoſe of Solfatara di Pozzuolo, which have whitened its crater, and which are mentioned with a degree of wonder by every writer on that volcano, are certainly inconſiderable indeed with reſpect to their extent when compared to theſe. Yet of all the ſulphureous exhalations which muſt have ſpread themſelves ſo widely over the iſland, not one now remains in action, except a few very thin fumes that riſe from the ground near the Stoves.

I viſited the Stoves three times: the two firſt I returned to the city by the ſame road I went, which is hollowed in the tufa; but the third I took my way back by Campo Bianco, and the Monte della Caſtagna, whence I proceeded to the high mountain of San Angelo. We have already ſeen that Campo Bianco and the Monte della Caſtagna are two mountains formed entirely of pumices and glaſſes, that is to ſay, of vitrified ſubſtances *: but how extenſive muſt be the roots of theſe ſubſtances! The declivity of the Monte della Stufe, and its ample plain covered with tufa, form, as has been obſerved, a bed of pumices, mixed with a great quantity of glaſſes and enamels. At about the diſtance of a quarter of a mile from the Stoves, towards Campo Bianco, the tufa diſappears, and the pumices remain uncovered, forming a continuation with thoſe of Campo Bianco. I have alſo found them in the road near Mount San Angelo, which contains great quantities, and every where they are accompanied with glaſſes. If to theſe we add the other parts of Lipari in which the ſame ſubſtances abound, I ſhall not exaggerate if I ſay that almoſt two thirds of this iſland, which is nineteen miles and a half in circuit, are vitrified.

This immenſe and almoſt incredible quantity of vitrifications may, probably, ſuggeſt to the reader the ſame idea which aroſe in my mind when I firſt viewed theſe places: that the fire which has acted on them muſt have been extremely powerful. This idea certainly appears very natural. But ſubſequent experience has taught me that this intenſe heat is not neceſſary for the production of this great accumulation of vitreous bodies by ſubterranean fires. It is certain that the production of pumices, enamels, and glaſſes requires a greater heat than the ſimple fuſion of lavas, when theſe ſubſtances derive their origin from the ſame baſe; but we ſhall not find it neceſſary that this greater heat ſhould be extremely violent, if we conſider the kinds of ſtones from which theſe vitrified mountains have been produced. The greater part are feltſpars and petroſilex, with ſome ſmall quantities of horn-ſtone. As to the latter, it has already been ſhewn, that it eaſily vitrifies in a glaſs furnace with no very vehement fire; in which, likewiſe, many petroſilices and ſome feltſpars are vitrifiable †. It has alſo been ſeen that the glaſſes, pumices, and enamels of Lipari are all completely re-fuſed in the furnace. It appears to me, likewiſe, that we have poſitive proofs that the volcanic fire was leſs violent than that of the furnace, in the ſubſtances, as well cryſtallized as amorphous, which, without having ſuffered the leaſt fuſion, are found incorporated in the pumices, glaſſes, and enamels of Lipari, and which may be perfectly liquefied in the furnace.

It cannot, however, be denied that the generative fires of Lipari muſt, at ſome time, have been extremely vehement; ſince, according to the obſervations of M. Dolomieu, they have even fuſed granite, compoſed of quartz, feltſpar, and mica, and converted it into pumice.

The ancient writers have left us very intereſting and inſtructive accounts relative to the ſtate of the conflagrations which in, and prior to their times had been obſerved in Stromboli and Vulcano; and we have made uſe of them when treating of thoſe two iſlands. But we can ſay nothing of the ancient fires of Saline, and that chain of rocks,

* See Chap. XV. † See Chap. V. and Chap. XI.

which

which once, probably, made a part of the iſland Euonimos, ſince with reſpect to theſe antiquity is to ally ſilent; and we can only infer that the volcanization of theſe two iſlands was known to the ancients, from a paſſage in Diodorus, who informs us, that all the Eolian iſles were ſubject to great eruptions of fire, and that their craters and mouths were ſtill viſible in his time *. With reſpect to Lipari, very few memorials have been preſerved of its ancient conflagrations. We are indeed certain of the great antiquity of this iſland, and that it exiſted before the Trojan war; ſince we learn from Homer that, after the taking of Troy, Ulyſſes landed there, and was treated with the utmoſt urbanity and courteſy by king Eolus during a whole month, which he continued there †; and though we allow to the poet the uſual licence of poetry, it is ſtill moſt certain that he could not have named this iſland, and the city it contained, unleſs they exiſted at the time he wrote his poem, ſince which nearly three thouſand years have now elapſed. But if we conſult other ancient and credible writers, we ſhall find that before Eolus, Liparus reigned in this iſland, which from him took its name, being before called *Melogonis*, or, according to others, *Meligunis*.

Another obſervation, likewiſe, here naturally preſents itſelf. An iſland formed by depoſitions, and the ſubſequent retiring of waters, may, in a ſhort time, be cultivated and inhabited; but it is not ſo with one that is produced by ſubterraneous eruptions, where the decompoſition of volcanized matters is neceſſary; that is to ſay, a far longer time. If therefore Lipari had inhabitants and cities, and was a cultivated country before the deſtruction of Troy, it is evident that it muſt have exiſted many ages prior to that event.

From the time, however, that mention is firſt made of this iſland in hiſtory to the preſent day, we may conſider it as certain that no true eruption, or current of lava, has taken place in it; as, otherwiſe, it is probable ſome memorial would have been preſerved of it, as well as of thoſe of Stromboli and Vulcano. Ariſtotle, indeed, mentions the fires burning in Lipari, but adds they were only viſible by night ‡; and the writers who followed him ſay nothing more. I hence infer that this iſland had attained its full formation and ſize, before it was known to men, which was not the caſe with Stomboli and Vulcano. I muſt not omit another obſervation. Many of the lavas of Lipari ſtill ſcarcely exhibit the leaſt ſign of alteration, eſpecially the vitreous, the enamels, and the glaſſes; though it is evident, from what has been ſaid above, that theſe bodies muſt have exiſted above three thouſand years. We hence perceive what an adamantine temperament, if I may uſe the expreſſion, the fire can beſtow on various ſubſtances, ſince they can thus reſiſt the influence of the ſeaſons and of time.

When I prove the antiquity of Lipari by the authority of Homer, I do not mean to conſider the other neighbouring iſlands as of poſterior date. I am likewiſe well convinced by the teſtimony of hiſtory that, except Vulcanello, they were all in exiſtence in the time of that poet, who probably does not mention the other Eolian iſles becauſe Lipari was the largeſt, the moſt fruitful, and moſt generally known, as being the reſidence and ſeat of government of king Eolus.

* Αυται δε πασαι πυρος εσχηκασιν αναφυσηματα μεγαλα, ων κρατηρες οι γεγενημενοι και τα στοματα μεχρι τȣ νυν εις φανερα. Lib. V.

† Αιολιην δ' ες νησον αφικομεθ'. ενθα δ' εναιεν
Αιολος Ἱπποταδης, φιλος αθανατοισι θεοισι,
Πλωτη εν νησω. Hom. Odyſſ. Lib. X.
Και μεν των ικομεσθα πολιν και δωματα καλα.
Μηνα δε παντα φιλει με, και εζερεεινεν εκαστα,
Ιλιον, Αργειων τε νεας, και νοστον Αχαιων. Ibid.

‡ Και το εν τη Λιπαρα δε πυρ φανερον και φλογωδες, ου μεν ἡμερας, αλλα νυκτος μονον καιεσθαι λεγεται. In Mirandis.

CHAP.

CHAP. XVII.—FELICUDA.

Two bays in this iſland capable of receiving ſmall veſſels.—The products found there by the author, ſufficiently prove it volcanic.—Circuit of it by ſea.—Priſmatic lavas falling into the ſea.—Spacious cavern hollowed in one of theſe lavas.—Enquiries relative to its origin.—Curious alternation of ſtratas of tufa and lava.—Other priſmatic lavas along the ſhore.—Obſervations relative to them.—Excurſion into the interior part of the iſland.—A mountain near the centre, higher than the reſt, on which is diſcoverable the crater of an ancient volcano, to which, probably, Felicuda owes its origin.—Conjectures that another ſmaller volcano exiſted at the ſummit of a lower mountain.—No other perceivable ſigns of volcanic mouths throughout the whole iſland.—Qualities of the lavas forming the interior part of Felicuda.—Glaſſes, pumices, tufas, and puzzolanas ſcattered over the iſland.—Puzzolanas and pumices employed by the inhabitants of Felicuda in building.—The ſubſtances of which the iſland is compoſed entirely volcanic, except a piece of granite, which appears to be natural.—Reflections on this rock.

IT yet remains to ſpeak of Felicuda and Alicuda, the two extreme iſlands of thoſe of Lipari towards the weſt; and I ſhall the more willingly undertake the deſcription of them, as they have not, to my knowledge, been viſited, at leaſt deſcribed, by any other naturaliſt; M. Dolomieu, who was moſt capable of examining them, having only ſeen them at a diſtance, as to have touched at them would have led him too far from his intended route.

On the 7th of October, in the morning, I ſet ſail, from Lipari for Felicuda, diſtant from the former iſland twenty-three miles, and arrived there in four hours. This iſland is not provided with a port; but it has two bays, one on the ſouth, and the other on the north-eaſt ſide, ſufficient for the reception of ſmall veſſels, and ſo ſituated, that though the wind ſhould render the entrance into one of them difficult, it will be eaſy to get into the other: both of them are likewiſe ſufficiently ſheltered by a mountain.

I landed in the bay on the north-eaſt ſide, and, in the firſt place, applied myſelf to diſcover of what materials the iſland was formed; and ſoon diſcovered inconteſtable proofs that it is truly volcanic. Not only is the ſhore of this bay lined with lava; but, having in the courſe of the day proceeded farther up on the ſouth-eaſt ſide of the iſland, I found among the earth of ſome fields a conſiderable quantity of pumices, glaſſes and enamels, which products I ſhall ſeparately deſcribe when I come to treat of the internal part of the iſland.

Being thus fully convinced of the ancient exiſtence of fire in this iſland, I determined, the next day, to make the circuit and examine the ſhores of it in the ſame manner as I had proceeded in the other iſlands.

Felicuda is nine miles in circumference. I began the circuit of it by examining the lavas that border the ſmall bay which I entered. Theſe have for their baſe the feltſpar, which is of a ſcaly conſiſtence, a light grey colour, not very compact, but giving a few ſparks with ſteel and attracting the magnetic needle. Within its ſubſtance are included needles of black and fibrous ſhoerl, and ſmall pieces of feltſpar, which are eaſily diſtinguiſhable from the baſe by their whiteneſs, ſemi-tranſparence, and luſtre. A part of the ſhores of the bay are compoſed of this lava with deep fiſſures running lengthwiſe, as we ſee in many other lavas. A number of round vacuities are likewiſe obſervable in it. They are of conſiderable depth, and give it the appearance of a honey-comb. I rather incline

incline to aſcribe them to the action of elaſtic gaſeous ſubſtances, when the lava was in a ſtate of fuſion, than to corroſions produced by the influence of the atmoſphere or any external agent. It is certain that the air of the ſea will greatly corrode many foſſil ſubſtances ſituated in its vicinity; and I have witneſſed extraordinary effects from its action on many low rocks, on the ſhore of the Mediterranean, near Genoa, and eſpecially at Porto Venere, the Golfo della Spezia, and at Lerici. I have alſo frequently obſerved the external part of many towers and maritime buildings very much injured on that ſide which fronts the water. The city of Commachio in the territory of Ferrara, perhaps, furniſhes ſome of the moſt complete examples of ſuch effects. It is ſituated in the midſt of ſalt lakes; and its porticos and edifices are ſo much corroded and damaged by the air, that they are obliged to undergo periodical repairs at the end of no very long time, as I obſerved with ſurpriſe during a ſhort ſtay which I made there in October 1792. The ſea-air, however, does not act thus on every foſſil ſubſtance indifferently, but, with reſpect to ſtones, ſeems principally to attack the carbonates of lime; though not all of theſe, as appears from the hard Iſtrian marble with which the ſuperb palaces and ſumptuous edifices of Venice are built, and which remains uninjured for a long ſeries of years. I likewiſe obſerve that volcanic ſtony ſubſtances are little, or not at all, injured by the air of the ſea; and I am the more confirmed in my opinion that the incavations in the litoral lava of which I am now ſpeaking muſt be attributed to the action of aëriform gaſes, and not to that of the ſea air, from obſerving the ſame, likewiſe, in the feltſpar, a ſtone much leſs liable to this kind of alteration than many others.

After having made theſe obſervations, I left the bay, and began to coaſt the iſland towards the left, on the northern ſide. I had ſcarcely proceeded one hundred and fifty paces when I met with a rock of lava, about thirty feet high, and equally broad, riſing almoſt perpendicularly from the water. This rock preſented a novelty I had not before obſerved in the Eolian iſles. This was a number of priſms into which the lava divided before it plunged into the ſea. The importance of this object induced me to bring my boat cloſe under the rock, that I might make the neceſſary obſervations with more certainty and ſecurity.

About twelve feet above the level of the ſea the rock is ſmooth and preſents an equal ſurface; but ſomewhat lower it begins to be furrowed with narrower longitudinal excavations, which deſcend to the edge of the water, and form priſms with three unequal ſides, the ſide behind remaining attached to the rock, or, to ſpeak more properly, forming one continued whole with it. Theſe priſms continue to preſerve their form under the water, of which I had indubitable proof. The ſea, though then calm, had a ſlight roughneſs towards the rock, to allay which I poured into it ſome olive oil, which I always carried with me in theſe excurſions to calm the leſſer waves of the ſea, and thus enable myſelf to perceive ſubaqueous bodies at a certain depth as circumſtances might require. By theſe means I diſcovered that the priſms were immerſed in the ſea to the depth of ſome feet. The breadth of ſome of the priſms was a foot and a half, but that of others leſs.

This priſmatic lava merits to be very accurately deſcribed, ſince, in proſecuting my voyage along the ſhore of Felicuda, I met with it in ſeveral other places, and ſhall again have occaſion to mention it. Its baſe is a horn-ſtone of the black colour of iron, and ſo compact that the ſmalleſt bubble is not perceivable in it; it muſt, therefore, be claſſed among the heavy lavas. The edges of the thinneſt flakes of it are tranſparent, and give ſparks with ſteel. Its fragments are amorphous, and receive a poliſh, but without luſtre. It attracts the magnetic needle at about the diſtance of three lines. The powder of this lava is cineritious, and impalpable, and attaches to the finger. In it are

contained various grains of amorphous feltſpar, and a greater number of ſmall, long, rhomboidal ſhoerls.

The product of this lava in the furnace is a hard enamel, of the colour of pitch, and full of bubbles. The feltſpars it contains remain refractory. It is to be remarked, that this enamel does not loſe the magnetic virtue.

The place where this rock hangs over the ſea is called *Fila di Sacca*. Beyond it the ſhore of the iſland, which continues to have a ſteep deſcent into the ſea, offers only common lavas, except one ſpecies which has ſome rude appearance of priſms, that aſſume a more diſtinct form near the ſurface of the water.

Still farther, at a place called *Saccagne*, a number of ſmall rocks riſe above the ſurface of the water; one of which is called *Il Perciato*, becauſe it is perforated in the middle, and the opening is wide enough to admit ſmall veſſels to paſs through. The forms of priſms are diſtinctly diſcernible in theſe rocks.

At the diſtance of fifty paces farther, a ſpacious cavern opens in the lava of the ſhore; an object highly intereſting and beautiful in the eyes of the volcaniſt. It is called the *Grotta del Bove Marino* (or Grotto of the ſea-ox), perhaps becauſe it was once the retreat of ſome *phoca* or ſeal, as in the Lipari iſlands, and many other places, the phocæ are called ſea-calves. The mouth of this cavern, in the upper part, is oval, and is ſixty feet in breadth, and above forty in height. The mouth opens into a kind of porch which leads into a ſpacious hall two hundred feet long, or nearly, one hundred and twenty broad, and ſixty-five high. This hall terminates the cavern. The ſea enters it; and as its force is broken by the narrowneſs of the entrance, ſmall barks when ſurpriſed by a ſtorm may there find ſhelter.

Some may perhaps wiſh to enquire, whether the roof of this cavern preſents any of thoſe ſtalaſtical concretions which are obſervable in many other excavations in mountainous countries, No ſuch concretions are to be ſeen; the ſtone of which it is formed being evidently not of an aqueous but an igneous, that is, a lava diſtinguiſhed by the following characters:

Its baſe is ſhoerl in the maſs; it is moderately porous, and therefore rather light; but gives ſparks with ſteel. It is unequal in the fractures, has a ſomewhat argillaceous odour, and attracts the magnetic needle at the diſtance of half a line. It is of a grey colour; but interſperſed with white, ſhining, rhomboidal feltſpars. Their ſplendour is diminiſhed in the furnace; but their whiteneſs appears heightened from the black colour acquired by the enamel produced by the fuſion of the lava, which is opake and extremely full of bubbles. The fuſion, inſtead of diminiſhing or deſtroying, rather increaſes its magnetiſm.

This lava, which forms the large cavern, deſcends almoſt perpendicularly into the ſea, and there aſſumes the form of priſms, but larger than thoſe before deſcribed. It is worthy of remark, that theſe priſms, though in their lower part they ſink deep into the water, do not riſe above it, in their upper, more than eight or nine feet.

But in what manner are we to explain the origin of this cavern? How great muſt have been the violence of the waves of the ſea, to form by ſlow corroſion ſo vaſt an excavation within this maſs of lava! To this cauſe I cannot conſent to aſcribe it; principally for this reaſon, among others that might be adduced, but which I omit for brevity, that no ſooner has the water entered the mouth of the cavern but it loſes all its force; beſides that the hardneſs of this lava is ſuch, that it does not eaſily yield to the ſtroke of the waves. I incline rather to think it the effect of the action of the gaſes in the lava at the time it was in a ſtate of fluidity; as we have examples at Etna of caverns incomparably deeper produced by a ſimilar cauſe.

Immediately

Immediately beyond the Grotta del Bove Marino, we meet with a mixture of tufa and lava, which merits ſome attention from the curious alternation of its ſtrata. They are found on a high precipice which deſcends into the ſea, the ſurface of which is covered with a tufaceous ſoil, reſting on a bed of lava, above another of tufa, and ſo ſucceſſively, that in a rent made in the precipice by the waters we may number eleven ſtrata or beds of tufa, and as many of interpoſed lava. It appears, therefore, that the fire and water, by their repeated action, have produced this mixture of lavas and tufas.

The lava of the eleven beds is of the ſame kind, that is, of a horn-ſtone baſe, and containing, as uſual, ſhoerls and feltſpars. It has an earthy aſpect, a blackiſh colour, and a ſtrong argillaceous odour. It moves the magnetic needle at the diſtance of two lines, and the enamel into which it is changed in the furnace has the opacity and blackneſs of pitch, and its magnetiſm is greater than that of the lava before fuſion.

The beds of tufa, likewiſe, do not eſſentially differ from each other. They are an ill-kneaded mixture of lumps of argillaceous earth, more or leſs tinctured with yellow oxyde of iron, which earth is eaſily pulverable. With it are mixed numerous ſhoerls, that from the ſoftneſs of the baſe may be ſeparated entire, which they ſcarcely ever can be in the lava. Notwithſtanding, however, the facility with which they may be detached, it is difficult to determine their cryſtallization, not merely from their extreme minuteneſs, for ſome of them are two lines in length, but from their being ſcarcely ever found ſingle, almoſt every one being a group of aggregated ſhoerls. When one, however, is found ſingle and detached, it appears to be an hexagonal priſm terminated by two trihedral pyramids. They are black, ſhining in the recent fractures, and are ſomewhat fibrous: in fine, they perfectly reſemble in their ſtructure the ſhoerls incorporated in lavas.

The tufa, after remaining two or three hours in the furnace, aſſumes a red colour, and become hard; its magnetiſm is likewiſe ſtrong, though before it was ſcarcely perceptible. A longer continuance in the ſame fire reduces it to a porous ſcoria, which does not loſe its magnetiſm, and the black colour it acquires renders more conſpicuous a number of white feltſpars which before were not diſcernible in the tufa. The ſhoerls are ſemi-vitrified, and aſſume a yellowiſh tinge.

In the remainder of my circuit round the iſland, till I returned to the place whence I ſet out, I obſerved no other intereſting objects, excepting a long tract of priſmatic lavas, ſimilar to thoſe I have already deſcribed.

I ſhall conclude what I have to ſay on theſe priſmatic lavas, which occupy a conſiderable part of the ſhore of the iſland, with the following remarks:

Firſt. Theſe priſms have never more than three faces, one of which always remains adherent to the lava.

Secondly. Their direction is never oblique or tranſverſe, but, without exception, perpendicular to the ſea.

Thirdly. They are not articulated, as they have been obſerved to be in ſome volcanic countries, eſpecially on Mount Etna, but form one continued line.

Fourthly. In their lower extremity they deſcend within the water, and, in their upper, riſe ſome feet above the level of the ſea.

Fifthly. Theſe priſmatic lavas have for their baſe, either the horn-ſtone or ſhoerl in the maſs.

I ſhall now proceed to deſcribe the objects which appeared to merit notice in the interior part of Felicuda. This iſland, when ſeen from the ſea, at a little diſtance, has the appearance of a number of mountains heaped together; one of which, ſituated in the centre, is much higher than the reſt, riſing perhaps half a mile above the level of

the ſea. After having examined the baſe or ſhore of the iſland, I proceeded, therefore, to the ſummit of this mountain, taking my way towards the eaſt, as, on that ſide, the road is leaſt difficult. The aſcent is not one of the moſt fatiguing; for, though we meet with ſteep precipices in ſome parts of it, they are preſently ſucceeded by gentle declivities, which relieve wearineſs and reſtore ſtrength.

When I had reached the ſummit of the central mountain, I perceived that it incloſed a capacious hollow called *Foſſa délle Felci* (the ditch of fern), becauſe it formerly was overgrown with that plant; though when I was there it had been all rooted up, with the intention of ſowing corn the next ſpring. This hollow is about half a mile in circuit, the ſides approach as they deſcend, and its depth is not more than forty feet. Theſe circumſtances ſufficiently prove that this was the ancient crater of the volcano; and that, perhaps, or rather without doubt, this was the firſt, which, by its eructations, contributed to the formation of Felicuda.

It is likewiſe to be obſerved, that the external part of this crater correſponds to the internal; that it is a truncated cone; that its lavas, parting as from a centre, have diverged like rays down the ſides of the mountain, while thoſe on the ſide towards the north-weſt have poured rapidly into the ſea. The propoſal to ſow corn in this hollow argues that it muſt be earthy, as it really is. It is formed of a half pulverulent tufa, under which, however, the lava is diſcoverable.

Three ridges riſe on this mountain, one of which deſcends to the ſouth; and, at about half way up, joins another mountain. The ſecond of theſe ridges has its direction to the eaſt, and the third to the weſt. From this ſummit I had a complete view of Felicuda, and looked round me with attention to ſee if I could diſcover the ſigns of any other crater. I thought I could diſcern the veſtiges of one to the ſouth-eaſt, and, afterwards, repairing to the ſpot, was more confirmed in my opinion. I found a hill about half as high as the mountain already deſcribed, and about two miles in circuit. It is iſolated on every ſide, and has the figure of a broken cone, truncated at the top, where it ſinks into a cavity growing narrower towards the bottom, which appears to be the relics of an ancient crater. Scattered pieces of various lavas, half-buried in an earthy tufa, occupy the cavity of this hill, and its external ſides are formed of a number of currents of lavas.

Except theſe two craters, of the laſt of which I have expreſſed myſelf with ſome doubt, I know not of any throughout the whole iſland; as I ſhall not venture poſitively to conſider as ſuch a number of cavities, hollows, and caverns which we meet with in various places, ſuch appearances not being ſufficient to characteriſe a volcanic mouth.

The principal lavas of the ſhore of Felicuda have already been deſcribed ſingly: it is now neceſſary to ſpecify thoſe which form the internal and more elevated parts of the iſland. Theſe, as far as I was able to diſcover, during the ſtay of five days which I made there, may be reduced to three kinds, if we omit thoſe which are merely varieties.

The baſe of the firſt is a horn-ſtone of a colour between a black and a grey, of a fracture evidently brilliant, without any appearance of pores, and which gives ſparks copiouſly with ſteel. The pieces into which it breaks have no determinate form, do not refuſe a tolerable poliſh, and move the magnetic needle at the diſtance of a line and three-fourths. Minute grains of quartz, numerous ſcales of feltſpar, and extremely ſmall and brilliant needles of ſhoerl are incorporated in this lava.

The furnace fuſes the ſhoerls, but not the quartz and the feltſpars; and the lava is changed into a black, frothy, and opake enamel.

This

This lava extremely reſembles the priſmatic lava deſcribed above; though it has not that regular configuration.

The lava of the ſecond ſpecies is likewiſe of the horn-ſtone baſe; not very hard nor heavy; of a cinereous and earthy aſpect, without pores, attaches ſlightly to the inſide of the lip, and emits an argillaceous odour. The ſhoerls it contains are rhomboidal, ſcaly, and of a violet colour.

In the furnace it is only ſoftened, and the ſhoerls remain entire.

The third ſpecies has for its baſe ſhoerl in the maſs. It is black without pores, rather heavy, and of a granular fracture.

The heterogeneous ſtones which are mixed with the ſubſtance of this lava, are of three kinds: ſmall irregular quartzoſe particles, which, from their whiteneſs, are moſt conſpicuous; a few minute feltſpars, and numerous rhomboidal ſhoerls, of a dark violet colour, and remarkable for their ſize, ſome of them extending to ſeven lines.

The feltſpars and quartzoſe grains are refractory in the furnace; though their baſe is eaſily fuſible, and produces a ſhining, opake, and porous enamel.

The internal part of the iſland, as far at leaſt as appears from the ſurface, is compoſed of theſe three lavas and their varieties; which lavas form currents, that, from their great antiquity do not exhibit thoſe tumors, wavings, and inequalities, which are obſervable in recent lavas, or thoſe of a moderate age. The ſame antiquity is, likewiſe, probably the reaſon why in Felicuda we do not find ſcoriæ, or ſcoriaceous lavas; theſe uſually from their ſlight and feeble texture, and from their lying on the ſurface of the current, being the firſt which are altered and deſtroyed.

When treating of Lipari, I remarked the great effects which have been produced on the products of that iſland by the ſulphureous acid exhalations. The contrary is to be obſerved of Felicuda, there not being a ſingle lava which exhibits the leaſt ſign of their influence; though they all bear the marks of the injuries of time and of the atmoſphere. So much have I found them changed, eſpecially near the ſurface, that had I not broken up the lavas to the depth of ſome feet, a practice to which I had accuſtomed myſelf in theſe reſearches, I ſhould frequently have taken the ſame lava for others ſpecifically different.

Having thus deſcribed the different kinds of lavas of this iſland, it will now be proper to proceed to treat of the other volcanic ſubſtances it contains. Among theſe are the tufas, which are found in great abundance in other parts of the iſland beſide thoſe above deſcribed. In general they are pulverulent, light, ſpungy, of an argillaceous nature, and greedily imbibe water. The places in which they are found, are the only parts of the iſland which the inhabitants can render productive by cultivation.

It is among the tufas that we diſcover glaſſes and pumices. We will treat of theſe two ſubſtances ſeparately, beginning with the firſt.

I have already ſaid, that I had ſcarcely landed in Felicuda before I diſcovered ſeveral pieces of volcanic glaſs. In my ſubſequent reſearches, I afterwards diſcovered that this glaſs was not found among the lavas, but in the cultivated earth of the fields. The peaſants of thoſe parts confirmed the truth of this obſervation, and, finding I was in ſearch of this ſubſtance, brought me more of it than was neceſſary, which they collected in the fields where they worked. As I was not, however perfectly ſatisfied with this firſt obſervation, I directed them to dig a deep trench in one of the fields which moſt abounded in ſpecimens of this ſubſtance, with a view to try if I could diſcover a vein, theſe being only detached pieces. The trench they dug was eight feet deep and five in breadth. For the depth of two feet I found only a tufaceous earth, containing ſome

of theſe vitreous pieces. At a greater depth the virgin tufa appeared, untouched by the ploughſhare, or any ruſtic inſtrument. This tufa likewiſe furniſhed a ſimilar glaſs, but always in detached pieces; nor was any difference perceivable in the nature of theſe products, on continuing the reſearch to the bottom of the trench, where the tufa was ſtill found.

It appears, therefore, that the glaſs in the ploughed fields had its ſeat in the tufa; though it cannot be affirmed with certainty, that it was thrown out from the mouth of the volcano in the ſame ſtate in which it is now ſeen; ſince it is only found in plates or flakes, and with thoſe points and ſharp angles, thoſe cutting edges and waving ſtreaks, which we obſerve in glaſs, whether volcanic or factitious, when it has been broken and divided into fragments by a hammer, or other heavy body. We muſt therefore conclude, that after the ſubterranean conflagrations had reduced the ſtony ſubſtance to glaſs, this glaſs has been thus broken and ſhivered by ſome convulſion of the earth, or by ſome violent and tumultuary agent.

The larger pieces are about five inches and a half over, and two in thickneſs. Many of them are not inferior in clearneſs and brilliancy to the fineſt and brighteſt glaſſes of Lipari; others are leſs tranſparent, and of a cineritious, or grey colour; while others are almoſt entirely opake; and theſe approach nearer to the nature of enamels than to that of glaſſes. They are all, however, extremely compact, and will readily give ſparks with ſteel, and cut common artificial glaſs. Several of theſe pieces contain within them ſmall white particles, which have been obſerved and deſcribed in many of the glaſſes of Lipari, which particles indicate that that the glaſſes containing them is not ſo perfectly vitrified as the reſt. We alſo find pieces, though they are rare, the one half of which is a very black glaſs, and the other a ſimple lava. The lava, which thus forms a whole with the glaſs, is of a cineritious, colour, and, as appears from ſome analyſes which I have made of it, is of a petroſiliceous baſe.

This glaſs, like other volcanic glaſſes, changes in the furnace into a vitreous froth.

It now remains to ſpeak of the pumices, which are likewiſe enveloped in theſe tufas. Theſe never form large maſſes, but are always found in detached pieces, of rather a ſmall ſize, the largeſt rarely exceeding the bigneſs of the cloſed hand. In general they are more plentiful than the glaſſes, and among the tufas of uncultivated places, it is only neceſſary to remove the ſurface to find them by hundreds. During my ſtay at Felicuda I reſided in a place called La Valle della Chieſa (or the Valley of the Church). This is a ſmall plain, on the eaſt ſide of the iſland, in which ſtand the parſonage-houſe and the church, two indifferent buildings, ſuitable to the poverty of the country. This place, as likewiſe a ſpacious declivity to the ſouth, abounded with pumices, both on the ſurface of the tufas, and below the ſurface, wherever they were dug into.

Theſe pumices are of two kinds; the one cellular, extremely friable, fibrous, and which float on the water; and the other compact, heavy, without pores, and of a ſmooth fracture; but which yet poſſeſs all the true characters of pumice. Some are of a reddiſh colour, others yellowiſh, and many aſh-grey. All are plentifully furniſhed with extremely brilliant vitreous feltſpar-ſcales.

In my obſervations on the pumices of Vulcano I have remarked, that inſtead of ſwelling in the furnace, and being transformed into an ebullient product, as is almoſt always the caſe with glaſſes and compact enamels, they become of leſs bulk, loſe their pores, if they had any before, or at leaſt contract, and therefore become heavier. The preſent pumices do not differ in this reſpect from thoſe of Vulcano; and the enamel which they produce in the furnace has a black and ſhining ground, interſperſed with whitiſh

ſpots which are feltſpars, that, having loſt their luſtre and tranſparency, are become white. This enamel puts the magnetic needle in motion at the diſtance of a full line, notwithſtanding that it had no ſenſible effect on it when in the ſtate of pumice.

There is no reaſon to ſuppoſe that theſe pumices have ever formed currents, both becauſe they are always found in detached pieces, and becauſe their pores have not that direction which is uſually obſervable in pumices that have flowed in the manner of lavas. The figure of the pores in pumices that have flowed, is uſually more or leſs oblong; whereas in the pumices of Felicuda (I mean the cellular) the pores are almoſt always orbicular. We muſt therefore conclude that they have been thrown out from the mouths of volcanos; to which the globoſe figure of many of them is perfectly conſonant.

I ſhould eſteem my account of the different productions of this iſland very defective, were I not to mention another which ſtill more confirms its volcanization: I mean the puzzolana found here in ſeveral places, and which, when carefully examined, is found to be a mixture of minute fragments of pumices, tufas, and lavas. The inhabitants of Felicuda make uſe of it, as alſo the pumice, in building their houſes, in the following manner: they bring carbonates of lime (calcareous earths) from Sicily, and burn them in furnaces, which are erected for greater convenience on the ſea-ſhore; and at the end of forty hours an excellent lime is produced. One-third of this and two-thirds of puzzolana, mixed together with water, form a cement which unites and binds the pieces of lava here uſed inſtead of bricks and ſtones; and to give, as they affirm, a greater ſtrength and ſolidity to the cement, they mix with it pounded pumice of their own country.

Lavas are uſed as materials for the building of houſes, not only by the inhabitants of Felicuda, but by thoſe of all the other Eolian iſles, each uſing thoſe of their own iſland; and it is the practice, not only in the country but even the cities, to build with ſuch ſtones as the environs afford, eſpecially when they are mountainous. I therefore, wherever I went, conſtantly examined the materials of which the villages, towns, and cities through which I paſſed were built; which frequently afforded me a light and direction in my enquiries relative to the foſſil ſubſtances of thoſe countries.

On reviewing the different volcanic bodies which I met with at Felicuda, we ſhall find that they conſiſt of glaſſes, pumices, tufas, puzzolana, and lavas with a baſe of ſhoerl, feltſpar in the maſs, or horn-ſtone. The iſland at preſent exhibits no indication of ſubterranean fire, and even thoſe ſigns which are uncertain and equivocal are wanting; ſuch, for inſtance, as warm ſprings.

In the various excurſions I made, I was particularly attentive to obſerve if by accident I ſhould meet with any body not volcanized, and found one only of this deſcription. This was a piece of detached granite, lying on the ſhore near the Grotta del Bov Marino. Its elements were of the moſt common kind; mica, feltſpar, and quartz. The mica was partly black, and partly white and ſilvery; both forming groups in which the black predominated. The quartz was in ſmall ſemi-tranſparent maſſes, of a vitreous and brilliant fracture, ſoft to the touch, and of a colour between a blue and a white. The feltſpar, which in quantity exceeded the two other principles, and therefore muſt be conſidered as the baſe of the ſtone, was in ſmall maſſes of unequal ſurface, lamellar in the fractures, tranſparent in the angles, and of a changeable milky whiteneſs. Neither of the three principles has a determinate form of cryſtallization. I think I ſhall not be miſtaken if I aſſert, that this granite has not ſuffered the action of the fire. In fact, a continuance of a quarter of an hour in the furnace produced in it ſo great an alteration, that every part of it was ſenſibly changed. The mica became pulverable, the quartz extremely friable and full of cracks, and, loſing its tranſparency and vitreous brilliancy,

became entirely white. The feltſpar likewiſe contracted a conſiderable friability, loſing at the ſame time its changeable colour, and becoming whiter. It is not therefore extraordinary that a ſlight blow with a hammer ſhould now break this ſtone into ſmall pieces; though before it would only ſtrike off at moſt a ſingle fragment. When expoſed to the furnace for ſeveral days ſucceſſively, the quartz and mica did not fuſe; and the feltſpar only exhibited at the angles, a beginning of fuſion, which made it appear as it were unctuous. This experiment is perfectly agreeable to many others which I made in the furnace on the granites treated of in Chap. XII. We muſt therefore conclude, that this piece of granite was thrown out untouched from ſome volcano in the iſland; or, which appears more probable, that it is adventitious to it; for it is to be obſerved, that it was not found in the interior part of the iſland, but on the beach, where it had been beaten, and had its corners ſmoothed by the waves. Were I to indulge conjecture, I ſhould incline to ſuppoſe it might have been brought by the ſea from Capo Melazzo in Sicily, or that vicinity, which is only fifty-four miles diſtant from Felicuda, and where immenſe maſſes of ſimilar granite are found *.

CHAP. XVIII. — ALICUDA.

Danger to which the author was expoſed, in a tempeſt, on his paſſage from Felicuda to Alicuda.—Pumices and glaſſes found in the latter iſland.—Examination of the coaſt of Alicuda.—Several rocks formed of detached globes of lava.—Enquiries relative to the origin of theſe globes.—Confirmation of the uncertainty of any opinions formed relative to the greater or leſs antiquity of lavas, from the more or leſs ſenſible decompoſition they may have undergone.—Iſolated maſſes of porphyry, which exhibit no ſigns of having been attacked by volcanic fire.—Lavas of another kind.—Shoerls of a greeniſh blue colour contained in all theſe lavas.—The coaſt of Alicuda more rugged and threatening than that of any other of the Eolian iſles.—No mouth of any ancient crater in the ſides of the iſland.—The appearance of a true crater found only at the ſummit.—Lavas in the interior part of the iſland ſimilar to thoſe of the ſhores.—Improbability that Felicuda and Alicuda once formed a ſingle conical mountain, the ſide of which has been opened and ſeparated by the ſea, as M. Dolomieu has ſuppoſed.—Reaſons for believing that each was originally a ſeparate iſland.—Theſe two iſlands no longer manifeſt any ſigns of actual fire.—The ſilence of the ancients relative to their fiery eruptions, a proof that they muſt have long ceaſed to burn.

ON the 13th of October, at ſun-riſe, I left Felicuda, in a ſmall bark, with four rowers, which was ſteered by the pariſh-prieſt of Felicuda, who had the character of a ſkilful ſeaman. We ſailed before a moderate eaſt wind: the ſky was clear, the ſea ſmooth, and we flattered ourſelves we ſhould ſoon reach the place of our deſtination, as the diſtance between theſe two ſmall iſlands is not more than ten miles. But ſcarcely were we half way, when the wind began to increaſe ſo that we were obliged to reef our ſail, which it was dangerous to carry full; yet ſtill we made more way than before; and the wind blowing with greater violence, and driving us rapidly towards Alicuda, from which we were now not far diſtant, endangered our being ſhipwrecked on the ſhore. Bays or harbours are things unknown in this iſland, and our bark driving before the wind, it was to be feared, might ſoon daſh againſt a rock, or run upon a ſand-bank; and we had the

* See Chap. XII.

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leſs hope of being able to avoid this danger, as our ſailors, from unpardonable negligence, had not brought with them any anchor.

The ſea, in the mean time, ran very high; and the waves, which would not perhaps have given much alarm to a large ſhip, were very formidable to our little veſſel, which they broke over from ſide to ſide, and from ſtern to prow, whirling it round with their violence; while the danger of being wrecked continually increaſed by our approaching the iſland, notwithſtanding all the exertions we could make with our oars to keep off it. Our ſailors, however, did not entirely abandon themſelves to deſpair, but conſulted whether it would be leſs dangerous to yield to the violence of the waves, and endeavour to run the bark on ſome ſand-bank joining to the ſhore; or, avoiding the iſland, to adventure out to ſea, and commit themſelves to the mercy of the winds.

In this deſperate ſituation, we perceived five men haſtily deſcending from the eminences of Alicuda, and approaching the ſhore, which they quickly reached; when one of them called to us in a voice which might be diſtinctly heard notwithſtanding the noiſe of the waves, adviſing us not to be terrified, but to endeavour to keep where we were, and he would exert his utmoſt efforts to deliver us from the danger by which we were threatened.

This perſon, as I afterwards found, was the pariſh-prieſt of Alicuda, who perceiving from a diſtance the ſituation in which we were, had haſtened with four of the iſlanders to give us aſſiſtance. He had brought with him a ſtrong pulley, which, when fixed on the ſhore, was to receive a rope, by means of which the veſſel might be drawn upon the land. But to effect this, it was neceſſary to form a kind of inclined plane on the ſhore, along which the boat might be drawn; which was ſoon done, with the ſpades and ſhovels that had been provided for the purpoſe.

We were not more than fifteen feet from the land, and by inceſſantly plying our oars, made every effort to avoid approaching it nearer. We were obliged, at the ſame time, continually to baſe the water out of the boat, to prevent its ſinking; which was the continual employment of myſelf and my ſervant, the ſailors being entirely occupied in uſing the oars. A rope coiled up was now thrown on ſhore by one of the ſailors, and, after two or three unſucceſsful attempts, caught by the perſons on the beach and paſſed through the pulley; while the ſailor drew it tight, and faſtened it to the prow of the bark. We now committed ourſelves to the firſt wave that rolled upon the ſhore; and, the five iſlanders pulling the rope with all their force, we were drawn with the bark up the ſhelving declivity they had made: but the wave on its return daſhing impetuouſly againſt the prow, drove us again into the ſea; and ſo violent was the ſhock, that the rope broke, and we loſt all hope of getting ſafe on ſhore. At this unfortunate and unexpected accident the good prieſt ſtruck his hand againſt his forehead, from vexation and diſappointment, and our conſternation was extreme.

We had now reſolved to keep off from the iſland, and brave the fury of the winds and the waves in the open ſea, whatever might be the event: but from this we were diſſuaded by theſe iſlanders, who aſſured us it was impoſſible ſo ſmall and crazy a boat as ours ſhould long reſiſt the violence of the ſtorm in the wide ſea; but that it muſt either overſet, or bilge and ſink. They adviſed us rather to coaſt the iſland towards the north, where we might poſſibly find ſome ſmall inlet, where we might be leſs expoſed to the waves; promiſing us that they would proceed the ſame way along the ſhore, and afford us every aſſiſtance in their power. This advice we followed, and bearing up to the north, without ſtanding far from the ſhore, in about half an hour met with a cavity in a rock which, from being winding, was not much expoſed to the agitation of the waves. Into this we happily carried our bark without damage, and landed, with the aſſiſtance

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of the worthy prieſt and the perſons with him, towards whom I ſhall feel the warmeſt ſenſations of gratitude while life ſhall remain. He treated us when on ſhore with the utmoſt kindneſs and hoſpitality; and when I had preſented to him the circular letter I had received from the biſhop of Lipari, (in which I was warmly recommended to the pariſh-prieſts of thoſe iſlands, who were requeſted to furniſh me with every aſſiſtance neceſſary for my philoſophical reſearches during my ſtay,) he redoubled his civility, offering to ſerve me in every manner in his power; and his whole conduct ſufficiently evinced the ſincerity of his offers.

It was not yet noon by ſome hours when we landed in Alicuda, but the fatigue I had undergone prevented my having any inclination to begin my reſearches that day; and the following night I ſlept in the bark, which had been drawn on ſhore; my deliverer (for ſo I may juſtly call the good prieſt of this iſland) having ſent me a mattreſs and a coverlet to defend me from the moiſture of the night, as I was too much fatigued to aſcend to his habtiaton, which was ſituated half way up the mountainous iſland. He likewiſe hoſpitably invited me to ſhare with him the proviſions of his frugal table, and ſome bottles of excellent malmſey of Lipari, which revived my ſpirits and reſtored my ſtrength.

I remained at Alicuda two days (the 14th and 15th of October), during which I ſufficiently gratified my curioſity, and acquired a ſatisfactory knowledge of the nature of the iſland. The obſervation of the ancient Grecian philoſopher is well known, who having been driven by a tempeſt on the coaſt of Rhodes, and with great difficulty reached the land, ſeeing certain geometrical figures traced in the ſands, immediately exclaimed, *I perceive the veſtiges of men:* I, in like manner, the moment I ſet foot on the ſhore of Alicuda and ſurveyed it, might have exclaimed, *I perceive the veſtiges of fire.* Theſe were the pumices, glaſſes, and enamels, which preſented themſelves to my view on the ſkirts and ſides of Alicuda, and which it is unneceſſary particularly to deſcribe, ſince they entirely reſemble thoſe of Felicuda, and are found like them mingled with tufaceous ſubſtances.

Of the two days which I allotted to my reſearches in Alicuda, I ſet apart the firſt to examine its circumference by ſea, the night preceding the 14th of October having been ſufficiently calm to permit me to make the circuit of it in my boat without danger.

I ſhall here, therefore, ſpecify the principal products I diſcovered during my circuit round the ſhore of the iſland, this being the part which, more than any other, muſt intereſt the philoſophical naturaliſt. I ſhall not name the places where I found them, ſince two of the inhabitants who accompanied me were unable to aſſign any names by which they were known; the different parts of the ſhore of the iſland having in fact no fixed names: I ſhall only indicate their diſtances from the place whence I ſet out.

At the diſtance of forty paces from that part of the iſland which fronts the eaſt, we begin to find, as we turn towards the north, entire rocks formed of globes of a blackiſh lava, with a petroſiliceous baſe, which, though porous, is heavy from the compactneſs of the ſolid parts, which have a little luſtre, are very hard, and in their fractures affect the conchoidal figure; they move the magnetic needle at the diſtance of more than a line, and give ſparks tolerably freely with ſteel. The petroſiliceous ſubſtance contains a few feltſpars, and a conſiderable number of ſhoerls. Theſe globes of lava are of various ſizes, ſome of them being a foot in diameter. They are detached, and are never found in ſtrata, but only in large accumulated heaps.

To what cauſe can we aſcribe the diviſion of this lava, and its conformation in the manner deſcribed? I at firſt imagined that its figure might be the conſequence of the agitation of the ſea, when its waters reached to a greater height; as theſe accumulations

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of globes are now ſome poles above its level. In fact, in my maritime excurſions round the other Eolian iſles, and at Etna, I have frequently met occaſionally with ſimilar balls of lava, which clearly indicated that they had been rounded by being continually rolled by the waves of the ſea, in the ſame manner as we find ſtones rounded in rivers. In the courſe of this work I have adduced ſeveral examples of this kind, even among the glaſſes and enamels of Lipari, which have taken a globoſe figure. But a more careful examination of theſe globes compelled me to change my opinion, on conſidering that the pieces of lava that have acquired an orbicular form from the agitation of the waters, are always more or leſs ſmooth on their ſurface; whereas theſe were rough all round—though their roughneſs, conſiſting in general of minute parts and points, muſt have been worn away by rubbing againſt any obſtacle. I obſerved beſides that theſe globes in many places had a ſhining and ſcoriaceous appearance, extremely ſimilar to that of the pieces of lava inceſſantly thrown out by the volcano of Stromboli. I am therefore rather of opinion that they are pieces of lava that have been thrown out from a volcano in Alicuda, and taken a ſpherical form in the air, from their great ſoftneſs, as ſimilar phenomena may be obſerved in the products of other burning mountains.

About a mile and a half beyond the lava now deſcribed, proceeding ſtill towards the north, we find a ſecond, not in globes, but in an ample current, which falls like a cataract into the ſea. It is of a petroſiliceous baſe, has the colour of iron, is ſiliceous, or rather vitreous in the fracture, and full of ſhoerlaceous cryſtallizations. Whoever has ſeen lavas which have lately iſſued from the mouth of a volcano, would imagine this of extremely recent date. On the ſurface it preſerves that ſhining aſpect, that freſhneſs, which is peculiar to lavas that have not yet been expoſed to the influences of the atmoſphere. The ſpecimens of it which I detached, might be taken for that ſcoria of iron which we find in the ſhops where that metal is fabricated. I have in my poſſeſſion ſome pieces of the lava which was thrown from the higheſt crater of Etna in 1787, which I collected on the ſpot, and have deſcribed elſewhere *. Theſe, with reſpect to the freſhneſs of their appearance, are not diſtinguiſhable from the lava of which I now ſpeak. Yet is the latter of an antiquity beyond our knowledge, for we have no record of any conflagration in Alicuda ſince hiſtory has been written. I have choſen to ſpeak more at length on this peculiar property of the preſent lava, to prove, or rather to confirm what I have already proved, how uncertain are all concluſions relative to the greater or leſs antiquity of lavas, derived from the more or leſs ſenſible degree of decompoſition which they manifeſt. Such concluſions may be well founded, when the lavas are of the ſame nature, and affected by the ſame intrinſic circumſtances; ſince then thoſe of a more ancient date muſt be moſt changed by time: but where their nature and qualities are different, one lava may be conſiderably altered in a few years, and even reduced to an earth, while another ſhall remain for ages perfectly preſerved, and in the ſame ſtate in which it was thrown out of the fire, of which the lava now deſcribed is an evident example.

At the diſtance of another full mile from the place whence I took my departure, the mountainous coaſt of the iſland becomes ſomewhat more level; and on this plain ariſe detached maſſes of porphyry, which ſhew no ſigns of having been touched, much leſs fuſed, by the fire. It is of a petroſiliceous baſe, of the colour of brick, affords ſparks with ſteel, and is extremely compact, and without pores, except a few ſuperficial vacuities, coated with a thin white cruſt of carbonate of lime, ſometimes ſtudded with cryſtals of the ſame kind. Theſe ſmall geodes, which have been produced without doubt

* See Chap. VIII.

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by filtration, are decompoſed in a few moments by the nitric acid, and diſſolve with a ſtrong effervescence. This porphyry, in its hardneſs, poliſh, and luſtre, is not inferior to the Egyptian. Beſides ſhoerls, it contains numerous cubical lamellar feltſpars, of a changeable whiteneſs.

When expoſed to the furnace for a few hours it becomes black, and after a longer time fuſes into a black, compact, and very ſmooth enamel, which ſets in motion the magnetic needle, though it produced no ſuch effect when it was porphyry. The feltſpars remain entire.

In this part of my circuit round Alicuda I have deſcribed two kinds of lavas, the one found in detached globes, and the other in a current; which, however, from the identity of their nature, may be conſidered as one only; both having for their baſe the petroſilex, and containing ſhoerls and feltſpars: they are therefore both porphyritic. And as the rock laſt deſcribed is a porphyry with a petroſiliceous baſe, it appears that they all three derive their origin from one common matrix, except that one portion of it has been ſubjected to fuſion, and the other remained untouched.

A little beyond the plain above mentioned appear ſome tufas, which cover a long and ſteep declivity deſcending into the ſea, and beyond the tufas we again meet with lavas forming broad currents. Theſe lavas have the horn-ſtone for their baſe and their external characteriſtics are the following:

They are light, extremely porous, and therefore eaſily penetrable by water; they with difficulty give ſparks with ſteel, which breaks off fragments at every ſtroke. They feel rough under the finger, and emit an argillaceous odour. They contain numerous feltſpars, which are conſpicuous from their whiteneſs, on a dark red ground approaching to a black. Some ſhew a degree of calcination which they have ſuffered in the fire, and are in conſequence eaſily crumbled. Others have ſuffered no injury; and the difference obſervable in them is rather to be aſcribed to the difference of the nature of the feltſpars, than to their having ſuffered a greater degree of heat, the lava in which they are both incorporated appearing to have been equally affected by that agent.

Alicuda is about ſix miles in circuit, and I have as yet made the tour of only the one half. On completing it, however, I only met with lavas of the ſame kind with thoſe already deſcribed, diverſified by a few varieties that do not merit a particular deſcription.

I have given ſome faint ſketches of the appearance of the lavas in ſome parts of this iſland; but it would be impoſſible for me to give an adequate idea of the fearful wildneſs of the ſcenes which preſent themſelves to the eye for two-thirds of this circuit. Among all the volcanized places I have viſited, I have yet ſeen none ſo convulſed by ſubterranean fires, ſo torn and ſhattered, and ſo filled with accumulated ruins by the devaſtations of time and the ſea.

In ſome places we find a lava extending for ſeveral hundred paces, which has been broken by the waves in ſuch a manner as to form a rock ſurrounded by the water, abounding in craggy cliffs and precipices of a fearful height.

In others the lava deſcends perpendicularly from the moſt elevated ſummit of the mountain, and buries itſelf in the water, ſurrounded on the ſides by projecting crags, and huge overhanging ſtones, which threaten every moment to thunder down into the deep.

Here the lavas do not form one continued body, but are compoſed of detached and looſe globes, particularly dangerous to thoſe who may attempt to aſcend the mountain, as they roll from under and put in motion a great number of others, thus producing a deſtructive ſtony current. Even the large falcons, which frequent the higheſt ſummits of this iſland, if they chance to alight on theſe heaps of round looſe ſtones, will often,

as I have myſelf ſeen, by moving one put others in motion, till bird and ſtones fall all together headlong into the ſea.

In another place lavas are found, not of one kind alone, but a confuſed mixture of ſeveral, piled in diſorder one on another to a prodigious height; and in many of them there is no part which does not threaten immediate fall and ruin.

Through the midſt, however, of theſe miſhapen rocks and horrid precipices are formed, I will not ſay roads or paths, but narrow winding gutters, by which we may aſcend to a certain height; and through theſe I took my way, when from time to time I landed from my boat and went in ſearch of the lavas I have deſcribed, and examined them on the ſpot. I was obliged, however, to advance with the greateſt caution, as to have made a ſingle falſe ſtep would have been to have fallen headlong down a precipice. I could not but recollect the lines of Dante, in which he deſcribes the laborious paſſage over the horrid crags and precipices of one of the abyſſes of his hell:

" E proſequendo la ſolinga via
Fra le ſchegge, e tra rocchi de lo ſcoglio,
Lo piè ſenza la man non ſi ſpedia."

" And ſtill along the ſolitary way,
Proceeding over rocks and precipices,
The foot without the hand no progreſs made."

And though the fatigue in again deſcending to the ſea might be leſs, the danger was equal, if not greater, from the unſtable and ſlippery nature of theſe deceitful places.

Having completed the circuit of the ſhores of Alicuda on the fourteenth of October, I appropriated the next day to the examination of the interior part of the iſland. I could, however, only make my reſearches in the part which fronts the eaſt and ſouth-eaſt; the remainder being inacceſſible from the dreadful crags and precipices already mentioned.

When ſeen from the ſea, on the ſouth-eaſt ſide, at the diſtance of two or three miles, this iſland has the appearance of an obtuſe cone, but with a conſiderable incavation on one ſide. This incavation has no reſemblance to a crater, and on a nearer examination we find it is only a lower part of the mountain. In fact, we perceive no marks of the mouths of ancient volcanos in the whole circuit of Alicuda; either becauſe they have never exiſted there, or becauſe all traces of them have been effaced by time or ſome other deſtructive agent. I have diſcovered the appearances of a true crater no where but in the higheſt part of the iſland, where there is a hollow, not very deep indeed, but about half a mile in circumference; and I incline to believe it to have been a crater, from finding there a group of lava diverging as from a centre over the body of the iſland.

I examined the lavas which cover the ſides of this mountainous iſland, at leaſt where I could reach them without danger, in the ſame manner that I did thoſe which form the baſe or ſhore of it. I ſhall not deſcribe them particularly, as it appears unneceſſary, they generally having the petroſilex or horn-ſtone for their baſe, and abounding more or leſs, as uſual, in feltſpars. Their external ſurface is covered with a yellowiſh and friable coating, originating in a beginning decompoſition. The deep fractures which we find in many parts of them enabled me to perceive that they muſt have flowed at different periods, forming beds or ſtrata one above the other, as is frequently obſerved in other volcanized countries.

M. Dolomieu was of opinion that " Felicuda and Alicuda had once formed a ſingle conical mountain, which had been opened and ſeparated on one ſide."

This is certainly not impoſſible, but I muſt ſay it appears to me extremely improbable. If the ſea, or any other violent agent, had divided this conical mountain into two parts, it is difficult to conceive that no record or tradition ſhould remain of this convulſive ſeparation. On the contrary, when I attentively examine and conſider theſe two iſlands, they have every appearance of being each a diſtinct iſland, like Stromboli, Saline, and the others. Both likewiſe have on their higheſt ſummits the veſtiges of their primitive crater, that is, of that which by its eructations has given birth to its reſpective iſland. The lavas likewiſe which have flowed from theſe ſummits, as from central points, and enlarge and extend as they take their courſe down the ſides of the mountain towards the ſea, ſeem clearly to prove that each was a complete iſland in itſelf; nor can I doubt but the French naturaliſt, had he viſited theſe iſlands themſelves, would have been of my opinion. He only viewed them from the higheſt part of Saline, that is, at the diſtance of five-and-twenty miles from Felicuda, and five-and-thirty from Alicuda. At that diſtance they ſeem very near to each other; ſo that M. Dolomieu, judging from appearance, ſuppoſes Felicuda to be only five miles from Alicuda, though it is in reality twice that number. As therefore at Saline they appear to be ſo little diſtant from each other, nothing was more eaſy than to imagine that they once formed a ſingle mountain, which, either by earthquakes, the violence of the ſea, or ſome other unknown cauſe, had been broken and divided into two parts, an arm of the ſea taking poſſeſſion of the intermediate ſpace.

From the ſummit of Saline he likewiſe eſtimated Alicuda to be only twenty miles from Cefalu, on the coaſt of Sicily; and, in fact, when I was on the ſame eminence, theſe two places appeared to me to be very near, and Felicuda ſeemed almoſt to join to Alicuda; yet it is certain that the diſtance between Alicuda and Cefalu exceeds five-and-forty miles. It is well known that this optical illuſion takes place with reſpect to any object ſeen at a diſtance, either by land or water. Nothing happens more frequently to the traveller than to find that two rocks, mountains, or buildings, which when viewed at a diſtance he had imagined to be extremely near to each other, and almoſt to touch, are in fact ſeparated by an interval of ſeveral miles.

The volcanic materials of Felicuda, as has been already ſeen in the preceding chapter, conſiſt of lavas with a horn-ſtone baſe, ſhoerl, and feltſpar; not to mention pumices, tufas, and glaſſes. The latter three products are likewiſe found in Alicuda, but the greater part of the lavas have the petroſilex for their baſe.

Notwithſtanding theſe two iſlands exhibit indubitable characters of fire, no ſigns of it in a ſtate of activity are at preſent to be ſeen. It may indeed be conjectured that ſome remains ſtill exiſt in the internal parts of Felicuda, from a warm ſpring, emitting the ſmell of ſulphur, which iſſues from the northern ſide of a rock, a little above the level of the ſea.

I ſhall here collect the notices that have been left us by the ancients relative to Felicuda and Alicuda, as they are extremely few and brief. We know that their names were Phenicuſa and Ericuſa (*Φοινικουσα* and *Ερικουσα*), which are ſaid to have the following derivation: Ariſtotle, ſpeaking of Phenicuſa, or Felicuda, as it is at preſent called, ſays, "it received that name from its abounding in palm-trees"—*φοινιξ*, in the genitive *φοινικος*, being the name of that tree in Greek *. Ericuſa, or Alicuda, we are told by the author of the epitome of Stephanus, was ſo named from the *erica* or heath, which there grows plentifully †. Strabo likewiſe informs us that theſe two iſlands derive their

* Εν μια των Αιολιδ προσαγορευομενων νησων πληθος τι φασι γενεσθαι φοινικων, οθεν και φοινικωδη καλεισθαι. In Mirandis.

† Ερικεσσα, μια των Αιολιδ νησων, απο φυσις καλεμενη.

names

names from plants *. At preſent, however, though heath is not wanting in Alicuda, Felicuda does not afford a ſingle palm-tree, nor is there one to be found in any of the Eolian iſles.

But neither the above-cited authors, nor any other ancient writers, make the leaſt mention of any conflagrations in theſe two iſlands; probably becauſe, though in their time, Stromboli, Vulcano, and even Lipari threw out fire, Felicuda and Alicuda, as we have ſeen was the caſe with Didyma and Euonimus, were entirely extinguiſhed.

CHAP. XIX. — OBSERVATIONS WHICH HAVE AN IMMEDIATE RELATION WITH THE VOLCANIZATION OF THE EOLIAN ISLES. — ENQUIRIES RELATIVE TO THE ORIGIN OF BASALTES.

Methods and inſtruments proper to raiſe ſtony bodies from the bottom of the ſea ſurrounding the Eolian iſles.—The bottom of the channels between Vulcano, Lipari, and Saline, entirely volcanic.—The ſame obſervable of the roots of the Eolian iſles below the water.—Gravel and volcanic ſand in the channel that divides Panaria from Lipari.—The rocks in the middle of the channels between Saline and Felicuda, and between Felicuda and Alicuda, analogous to thoſe of the ſame iſlands, but probably primordial.—Deciſive proofs deduced from theſe obſervations, that the ſhoerls and cryſtallized feltſpars of the lavas have not been taken up by them when in a fluid ſtate, nor formed within them at the time of their congelation.—Confirmation of theſe proofs.—The Eolian iſles placed in a direct line from eaſt to weſt.—A ſimilar direction obſervable in ſome iſlands and volcanic mountains in other countries.—Not improbable that all the eight Eolian iſles were formed at the ſame time, and perhaps very ſuddenly, with reſpect at leaſt to their firſt rudiments.—Explanation of the cauſe why iſlands and burning mountains are ſometimes produced diſpoſed in a right line.—Materials of the Eolian iſles for the moſt part porphyritic.—Analyſis made by the author, proving that the red Egyptian porphyries have not for their baſe the petroſilex, but rather the horn-ſtone.—Enquiry whether the vitrifications found in ſuch prodigious quantities at Vulcano and Lipari, are found in ſimilar quantities in any other volcanic countries.—Uncertainty of this from the want of accurate mineralogical deſcriptions of the greater part of volcanos.—The accounts given of them uſually general and wonderful, but little inſtructive.—Volcanic glaſs found in Iceland, but by no means in ſufficient quantities to form mountains.—No notices of vitrifications in the volcanos of the iſlands of Ferro, nor in thoſe of Norway and Lapland.—Little or no glaſs in the volcanized countries of Germany and Hungary.—Nor in the extinguiſhed volcanos of France.—The quantity of vitrifications at Veſuvius, and ſeveral other parts of the Neapolitan territory, more conſiderable.—Scarcely any at Mount Etna, or the volcanic mountains of Padua.—A more extenſive tract of pumices found perhaps in no part of Europe than in the iſland of Santorine.—This iſland, however, affords no glaſs.—Great ſcarcity of vitrifications in the three other quarters of the globe.—Concluſion: that Vulcano and Lipari offer a greater abundance of glaſſes than any other volcanized part of the world; but that Santorine exceeds them in the quantity of pumices.—Enquiries relative to this ſcarcity of vitrifications in volcanos, whether burning or extinct.—It ſeems to proceed leſs from the quality of the ſtones acted on by the volcanic fire, than from the inefficacy of that agent to produce vitrification.—A ſucceſſively ſtronger degree of heat requiſite for a ſtone to paſs from the ſtate of lava into pumice, and

* Των δε λοιπων Ερικαστα μεν και Φοινικαστα απο των φυτων κεκληνται. Lib. vi.

from that of pumice into perfect glass.—Elucidation of the cause why some volcanos produce pumices, but not glasses.—The formation of pumices hitherto not attainable in our furnaces.—Black the natural colour of pumices, which are rendered white by external causes.

Enquiries relative to basaltes.—These originate in the humid way, when the word basalt is understood in the sense in which it was used by the ancients.—The columnar stones which, from their prismatic configuration, resemble the basaltes of the ancients, originate according to circumstances in the humid or the dry way.—Proofs of their origin in the dry way in Vulcano and Felicuda.—Nature, in the fossil kingdom, produces crystals as well by the dry way as by the humid.—This exemplified in the generation of basaltes.—An abuse of analogy to conclude from it one common origin of basaltes.—When examined detached, they frequently bear no peculiar character of their origin, which must be determined from local circumstances.—Enquiry whether basaltiform lavas have become such by a sudden condensation within the sea.—Proof which shew, first, that many basaltiform lavas have assumed this symmetrical configuration on coagulation in the waters of the sea; secondly, that in others it has taken place only by congelation in the air; thirdly, that very numerous lavas have proved refractory to this figure, both within the sea and in the air.—The property of assuming a prismatic figure appears in many lavas not to depend on their being of a particular species, nor on their compactness and solidity, but on extrinsic and adventitious circumstances.—These circumstances indicated, with an explanation in what manner, according to their presence or absence, lavas frequently assume a prismatic form in the air, while others remain irregular within the sea.

THE form, size, and structure of the Eolian isles, the different materials of which they are composed, and the primordial rocks from which these are derived; the fires which still burn in some, and the phenomena and changes which accompany them; with the comparison between the present conflagrations and those of ancient times, constitute the principal objects to be considered in writing the volcanic history of such a country. And though we have already employed nine chapters on these subjects, we conceive the candid reader will not accuse us of extreme prolixity; both because we have had to treat of seven islands, and because our object was to write the lithology of this ancient and celebrated country. The present chapter, we flatter ourselves, will, in like manner, be acceptable to the enquiring naturalist, as it contains various observations and reflections which have a direct and immediate relation to the deflagrations of the Eolian isles.

We have already observed and described these islands from the summit to the base, which buries itself in the waters of the sea. But it was impossible to examine their internal part in the same manner as the external; though the importance of such an examination merited that every effort in our power should be exerted to effect it. It would be equally interesting and instructive to ascertain the nature of the bottom in those tracts of sea which surround these islands, and separate them one from the other. I shall therefore here relate what I observed with respect to this subject, and describe the methods and instruments to which I had recourse to make my observations.

Where the depth was not great, I found extremely useful the large tongs, mentioned by Donati*, furnished with strong pincers, fixed to one or more bars, which by means of a rope may be closed or opened at pleasure, and thus take hold of and bring up any substances from the bottom. But where the water was deep, I found it more convenient to employ one of those nets which fishermen use to envelop, and tear from the rocks, coral and other subaqueous bodies. These nets I easily procured, as coral is fished

* Saggio sopra la Storia naturale del Mare Adriatico.—Essay on the Natural History of the Adriatic Sea.

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upon theſe coaſts; of which fiſhery I ſhall treat further in a ſubſequent part of this work.

Employing, therefore, theſe two inſtruments, the following was the reſult of my obſervations, which were not made on pieces that lay detached on the bottom, but on ſuch as formed a continued whole with it, as was evident from the recent appearance of the fractures where they were broken off.

In the channels which divide Vulcano from Lipari, and Lipari from Saline, the bottom is entirely volcanic, and affords products of the ſame ſpecies with the two ſhores. The ſame is obſervable of the foot of the iſlands, which foot in ſome ſituations deſcends perpendicularly; but in others has a conſiderable declivity, and thus enlarges the circuit of the iſland. The pieces of lava which I was here able to detach, did not differ from thoſe of the ſhore, which I have already deſcribed.

But at a greater diſtance between iſland and iſland this was not the caſe. I made my experiments in three different places. The firſt was between Lipari and Panaria; but here, the water being very deep, I did not ſucceed in my attempts to bring up any ſtony body from the bed of the ſea, but only teſtaceous and cruſtaceous animals alive or dead enveloped in ſand and gravel, and forming a ſpecies of cruſt more or leſs thick. The ſand and gravel, it is to be obſerved, were volcanic.

The ſecond place in which I made this experiment was between Saline and Felicuda, and the third between Felicuda and Alicuda, in both inſtances, at the point of greateſt diſtance as nearly as the eye could meaſure, between the two iſlands. In each of theſe ſituations, beſides drawing up from the bottom portions of the before-mentioned cruſt, I likewiſe obtained ſeveral ſtony fragments, which, from the great force it required to ſeparate them, and the recent appearance of their fractures, evidently had an immediate communication with the ſolid and rocky bottom. The whole number of theſe fragments, great and ſmall, was eleven: of which four were brought up between Felicuda and Alicuda, and ſeven between Saline and Felicuda. The baſe of five * of them was a petroſilex almoſt opake, affording ſparks with ſteel, compact, of a grain little ſcaly, but fine; the colour of two of theſe pieces was a lightiſh blue, and that of the three others a grey. The baſe of the ſeven other pieces was a dark green horn-ſtone moderately hard. None of them differed in their baſe, and ſhoerlaceous and feltſpathoſe cryſtallizations, from ſeveral volcanic lavas of the Eolian iſles.

Theſe eleven pieces, however, excited in me a ſtrong ſuſpicion that the rocks from which they were detached had not been expoſed to the action of fire. The particles of the petroſilex in them were more cloſely united, had greater hardneſs, and a more ſiliceous appearance, than in the ſame ſtone of thoſe iſlands, which has been ſubjected to fuſion. In like manner, the lavas, of a horn-ſtone baſe uſually have ſomewhat of a fibrous nature, and a thinneſs in their texture which is not ſeen in the ſtone of the ſame kind. Theſe two rocks, therefore, appeared to me to be in their natural ſtate.

I conſider theſe experiments as very inſtructive with regard to the origin and formation of theſe iſlands. We may conclude from them: Firſt, That the part of the iſlands which is buried under the waters of the ſea, has ſuffered the action of the fire in the ſame manner with that which is expoſed to the eye of the obſerver. Secondly, That Vulcano, Lipari, and Saline form one continued group of volcanized ſubſtances, which, at firſt, might probably have one common central conflagration that dividing into three branches, and affording a paſſage to three diſtinct mouths, gave birth to three iſlands,

* The author muſt here have committed ſome miſtake, as he, immediately before ſaid the whole number of pieces was eleven, and now mentions *five* and ſeven. T.

which conflagration, by ſubaltern and ſucceſſive ramifications, and ejections of new matters, afterwards increaſed in extent. No ſenſible remains, indeed, of ſuch a fire are at preſent diſcoverable in the internal parts of Saline, nor are any obſervable in Lipari, its whole efficacy appearing to be confined to Vulcano. Thirdly, That Alicuda, Felicuda, and Saline do not appear to have any volcanic communication with each other, at leaſt in the parts that form the bed of the ſea, which ſeparates theſe three iſlands from each other; ſince thoſe parts, as far as the eye can perceive, ſhew no ſigns of the action of fire. Fourthly, That theſe three iſlands, and perhaps likewiſe Stromboli, are ſituated in the vicinity of analogous but primitive rocks the perfect reſemblance of the ſhoerls and feltſpars in theſe rocks, both in thoſe that have ſuffered change from the fire and thoſe that have not, is a demonſtration that theſe cryſtallizations have not been taken up by the lavas when they flowed in currents nor formed in them at the time of their congelation,

From the very beginning of this work, I have adduced facts of the ſame nature, which I have the ſatisfaction to confirm by the preſent; and which become of the greater importance, as I have lately read that a naturaliſt of eminence inclines to believe that the ſhoerls of lavas are formed when the latter condenſe and become cold, becauſe then the homogeneous molecules ſeparate from the heterogeneous, and unite by affinity in ſmall cryſtallized maſſes. This ingenious theory is not only contradicted by the obſervation made above, but appears to me not to accord with the uſual operations of Nature. Were it well founded, I can perceive no reaſon why the ſhoerls in lavas ſhould not re-appear after they have been fuſed within them in the furnace, and being removed into a cold place, have acquired their former hardneſs. But though I made experiments with fire on ſome thouſands of pieces of lava, not one of them reproduced its ſhoerls, though many were continued a long time in a ſtate of fuſion, and afterwards ſuffered quietly and ſlowly to cool and conſolidate; which two circumſtances are known to favour the formation of cryſtallizations. Shoerls were indeed ſometimes found in the lavas, after fuſion, when cooled and hardened; but theſe had proved refractory to the fire, as appeared on expoſing them again to the furnace detached from the lava.

The eleven pieces of primordial rock broken from the bottom, exhibited in the furnace the ſame changes with their congenerous lavas expoſed to the ſame fire: the feltſpars, however, remained refractory.

The Lipari iſlands extend in a right line from eaſt to weſt the diſtance of about fifty miles, except that Vulcano makes a ſmall angle. Stromboli is the firſt to the eaſt, and Alicuda the laſt to the weſt. This is not the only inſtance of volcanos having produced iſlands, or rather mountains, arranged in a rectilinear direction. We find an example of this in the Moluccas, which are the produce of ſubterranean fires, and placed one beyond the other in a right line. When, in 1707, a new iſland was thrown up by a ſubmarine volcano, in the Archipelago, near Santorine, other ſmall iſlands aroſe from the ſea near it, to the number of ſeventeen in a right line, forming, as it were, a long chain of black and dark rocks, which viſibly increaſed in dimenſions and height, and, approaching each other, at length united, and, joining that which firſt aroſe from the water, formed one ſingle iſland *.

Another memorable inſtance of this direction of volcanic mountains (for iſlands are in fact only mountains buried in part under water) is the production of ſeven leſſer mountains by the eruption of Veſuvius in 1760; the account of the formation of which,

* Vallifneri Oper. fol. t. ii.

as it may throw ſome light on that of the Eolian iſles, I ſhall here give, from the accurate relation of Profeſſor Bottis, an ocular witneſs.

After repeated concuſſions of the earth, which were felt fifteen miles round Veſuvius, the ſides of the fiery mountain opened in the territory of the Torre del Greco, and fifteen volcanos appeared, eight of which were ſoon after covered by a torrent of lava, which ruſhed from one of them; the other ſeven remaining entire, and inceſſantly ejecting from their mouths vaſt quantities of ignited ſubſtances, which, falling almoſt perpendicularly around the volcanos, produced, in the ſhort ſpace of ten days, ſeven ſmall mountains, of various heights, diſpoſed in a right line. During theſe ejections, the noiſe which accompanied them ſometimes reſembled that of violent thunder, and at others the diſcharge of a number of cannons. Several of the burning ſtones, even the largeſt, were thrown to the height of nine hundred and ſixty feet, and ſome fell at a conſiderable diſtance from the mouth whence they were thrown. Theſe eructations ſhook all the neighbouring country, and the roarings of the mountain were dreadful to the inhabitants. After the tenth day the eruptions ceaſed, and the newly-formed mountains, gradually cooling, permitted a nearer approach; when ſome were found to have at their ſummit a cavity reſembling an inverted funnel, and others a ſimple hollow of greater or leſs depth.

The production of the Eolian iſles being anterior to the records of hiſtory, we know not whether this took place at one time, or in different periods. The relation, however, juſt cited, of the origin of the ſeven Veſuvian mountains clearly proves the poſſibility of their being produced at the ſame time. It alſo proves, that the whole eight might be formed in no long ſpace of time, with reſpect at leaſt to their firſt rudiments, it having been ſeen that they have received ſucceſſive additions.

We alſo evidently perceive that the inflammable ſubſtances generative of the Moluccas in Aſia, of the chain of iſlands at Santorine, of the Veſuvian mountains above deſcribed, and of the Eolian iſles, have formed a direct ſubterranean zone incomparably longer than broad. This phenomenon may be explained by recurring to the clefts and fiſſures perpendicular to the horizon, exiſting in many places within the earth, as well in ſoft ſubſtances as in the more durable and ſolid; within which clefts ſhould ſubſtances proper for the production of volcanos be found in abundance, and become inflamed, in ſeparate heaps, burning mountains would ariſe, in a direct line, and more or leſs large, according to the quantity of the ejected matters.

From the particular deſcriptions of the iſlands of Lipari, we have ſeen that the combuſtible ſubſtances which have produced them have ſometimes been contained within granite, as at Panaria and Baſiluzzo, but for the moſt part within rocks which have for their baſe the petroſilex, the horn-ſtone, and the feltſpar. It likewiſe appears, from the obſervations made at Stromboli, that, even there theſe burning ſubſtances have their ſeat in the horn-ſtone rock, though, from the ſize of the iſland they have produced, they muſt undoubtedly be buried at an immenſe depth. If we would ſimplify the facts relative to the materials of all theſe iſlands, we ſhall find that they are for the greater part porphyritic; as are likewiſe ſome of thoſe ſubmarine tracts, apparently not touched by the fire, and placed among them, as has been ſhewn above *.

When I compared the effects of the furnace on volcanized porphyritic rocks with thoſe it produces on the natural, I mentioned ſome red Egyptian porphyries, the baſe of which I believed to be horn-ſtone rather than petroſilex, relying on the analyſes of Bayen, as related by Delametherie, of an Egyptian porphyry of the ſame colour, and

* See the Note at page 82, Chap. XI. in which I have ſpoken of the eſſential characters of porphyry.

ſimilar to thoſe on which I made my experiments *. But not having then been able to analyſe them from want of time, I determined to do it afterwards, and give an account of the reſult, in another part of this work, when I ſhould again have occaſion to ſpeak of this ſpecies of volcanic rock. I ſhall here give this analyſis, which affords a confirmation that the baſe of theſe porphyries is not petroſilex, as they contain magneſia, which is not found in that ſtone. From this circumſtance, and the nature of their conſtituent principles, their baſe ought rather to be called a horn-ſton , of the nature of which it at leaſt participates. This analytical obſervation is likewiſe here very opportune, as it is an additional proof that I have properly called porphyritic the lavas with a horn ſtone baſe, and containing feltſpars, which are ſo numerous in theſe iſlands.

The red Egyptian porphyries which I analyſed are of two ſpecies: the firſt has been already deſcribed; the ſecond differs only in its colour being of a leſs lively red, and in the abundance of its feltſpars. It is evident, that to render this experiment accurate the ſubſtance of theſe two ſtones ſhould be firſt freed from the ſhoerls and feltſpars which they contain.

First Species.

Silex, ſomewhat reddiſh	80
Alumine	7
Lime	3
Magneſia	2
Iron	6

Second Species.

Silex	81
Alumine	7½
Lime	4
Magneſia	2
Iron	4½

Beſides the porphyritic lavas with which the Eolian iſles abound, we have ſeen that they contain great quantities of tufas; and that Stromboli is diſtinguiſhed from the other iſlands not only by its volcano, but by the beautiful ſpecular iron it affords; and Lipari by its chryſolites and zeolites, but ſtill more by the prodigious quantities of pumices and glaſſes which it contains. I cannot, indeed, reflect on thoſe enormous maſſes of vitrifications, without renewed wonder; which has been ſtill more increaſed by the diſcovery, by means of the forceps and coral net, that theſe vitrifications are continued from Lipari, till they join thoſe of Vulcano, which on the north and north-eaſt ſide abounds in pumices, and enamels, and glaſſes. The vitreous ſubſtances, therefore, of this iſland, and thoſe of Lipari, which, as has been ſaid, occupy about two-thirds of the latter, compoſe an accumulation of glaſs, not leſs than fifteen miles in circuit. It is impoſſible to attend to this ſtupendous phenomenon without feeling our curioſity excited to know whether it be peculiar to theſe iſlands, or found likewiſe in other volcanized countries. But ſatisfactorily to anſwer ſuch a queſtion, it would be requiſite that we ſhould be acquainted with the volcanic mineralogy of all the volcanos in the world; not only thoſe at preſent burning, but thoſe extinguiſhed, which are infinitely more numerous; in the ſame manner as we are with that of Vivarais and Velay, the iſlands of Ponzo, Veſuvius, Etna, the Eolian iſles, and the mountains of Old-Briſach, by the labours of Fau-

* See Chap. XI.

jas,

jas, Gioeni, Dolomieu, Dietrich, and myſelf. Of ſuch a mineralogy, however, we are entirely deſtitute. The greater part of thoſe who, either by chance, or from curioſity, have viewed burning volcanos, have only deſcribed in their relations the moſt common and general phenomena, leſs adapted to increaſe the knowledge than to amuſe the imagination of their readers, and excite their wonder.—Shocks and undulations of the earth; the ſea in commotion, and raging without a tempeſt; here retiring and leaving its ſhores dry, and their inundating vaſt tracts of land; ſubterranean thunders, and roarings in the air above; the ſun diſappearing in thick darkneſs at noon; whirlwinds of ſmoke, aſhes, and flame, burſting from the yawning gulf; burning ſtones hurled towards heaven, and falling in a fiery hail; torrents and rivers of liquid lava, ſulphur and bitumen, pouring down on the valleys below, and carrying terror, deſolation, and death; iſlands, now ſuddenly produced by ſubmarine eructations, and now torn from their foundations, and ſwallowed up by earthquakes; theſe compoſe the uſual deſcriptions of volcanos, which, though they may not be uſeleſs when the facts are faithfully ſtated, and not magnified by the imagination of the narrator; yet they commonly want one eſſential requiſite; that is, lithological deſcriptions of the bodies ejected by theſe burning mountains. As glaſs and pumices, however, are known even to thoſe who are unacquainted with this part of natural ſcience, we may, with certainty, or at leaſt, with the ſtrongeſt probability, conclude, that they are produced by the volcanos in the deſcriptions of which we find them expreſsly mentioned as making a part of the ejected matters, and that they are not produced when not mentioned. Thus in Iceland, the greater part of which Iceland is only an accumulation of volcanos either extinct or active, it is certain, from the accounts of travellers, that numerous glaſſes are found to which the name of Icelandic agate has improperly been given, only becauſe they have the luſtre and beauty of that ſtone. The preſent eruptions of this iſland, likewiſe, not unfrequently contain pumices; but no perſon has ever aſſerted that there are entire mountains of theſe ſtones, or of glaſſes.

The iſlands of Ferro are conſidered as volcanic, and produce the famous zeolites, mixed, as it is ſaid, with lava; but as yet we know nothing more of them. The minute account of each of theſe ſeventeen iſlands publiſhed by Jacobſon Debes, in which no mention is made of the vitrifications, authorizes us to conclude they do not exiſt there.

Norway and Lapland have their volcanos, which from time to time burſt forth in fearful eruptions according to the accounts of Pennant and others, who, however, give us no further information.

Leaving theſe cold regions, and paſſing to Germany and Hungary, we find ſome tracts of theſe countries that have likewiſe been ſubjected to ſubterranean conflagrations, which, however, have produced no vitrifications, or ſcarcely any. "I have ſought in vain the black agate of Iceland, and the true pumice," ſays the above cited Baron Dietrich, in his long and circumſtantial Memoir relative to the volcanos near Old-Briſach.

Proceeding to a milder climate, and approaching nearer to our own country, we find that the extinct volcanos of France afford no pumices or glaſſes; which aſſertion I can make on the authority of M. Faujas, who has written ſo well concerning them, than which one more unqueſtionable cannot be adduced.

It is not the ſame with Italy; the country in which fire has principally extended its empire. The Neapolitan territory peculiarly abounds in pumices, enamels, and glaſſes, as appears in the iſlands of Ponza, at Herculaneum, Pompeii, Miſeno, Monte Nuovo, the Rock of Burnt Stones, Procida, Iſchia, and the valley of Metelona *. Even in our

* See Chaps. IV. V. VI.

times Vesuvius has ejected similar bodies; but, with respect to Etna, its fires rarely produce the slightest vitrification.

The only place in Europe, which, in the abundance of its pumices, can equal, or perhaps surpass Lipari, is the island Santorine. On this subject we may consult Thevenot and Tournefort, two intelligent travellers, who at different periods examined this island, which has not hitherto, to my knowledge, been considered by volcanists in this point of view.

The former, who visited Santorine in 1655, observes, that "many of the inhabitants live in caves made under the earth, which is extremely light, and easily dug into, as it consists entirely of pumices." He afterwards relates a fact, which has a particular relation to our present subject, since it teaches us in what manner these light stones may be thrown up, immediately by the sea, in volcanic eruptions. His account is as follows:

"About eighteen years ago, on a Sunday night, a violent noise began to be heard in the port of Santorine, which was likewise heard even to Chios, distant more than two hundred miles, and was thought to be occasioned by the Venetian fleet having engaged the Turks; in consequence of which great numbers of people got upon the highest places early in the morning to be spectators of the battle; and I remember the Reverend Father Bernardo, a venerable man, perfectly deserving credit, told me he was one among the number of those who were so deceived, imagining they heard a violent cannonade. They could however see nothing. In fact, this noise was caused by a fire kindled in the earth, under the harbour, the effect of which was, that from the morning to the evening a vast quantity of pumices rose from the bottom of the sea, with such violence and noise as to resemble repeated discharges of cannon, and so infected the air that several persons died at Santorine, and many lost their sight, which they did not recover till some days after. This infection extended as far as the noise which had preceded it had been heard; since not only in this island, but at Chios and Smyrna, all the silver became red, whether kept in coffers or in the pocket; and the religious who resided there told me that all their chalices became red. After some days the infection ceased, and the silver returned to its former colour.

"The pumices which were thrown up covered the Archipelago in such a manner, that for some time, when certain winds prevailed, the harbours were so blocked with them, that not even the smallest vessels could get out till a way was made for them by removing the pumices with long poles, and they are still seen scattered over the whole Mediterranean, though in a small quantity *."

Tournefort, after having remarked from Herodotus that Santorine was once called Καλλιστη, or "the most beautiful island," adds, that "its ancient inhabitants would not at present know it, since it is covered with pumices, or, more properly, is a mine of those stones, which may be cut into great square blocks, as other stones are cut in the quarries †."

According to this traveller and to Thevenot, Santorine is thirty six miles in circuit; whence it appears what a prodigious accumulation of pumices there must be in this island and the adjacent sea. It merits notice, however, that neither these two travellers, nor others who have written of Santorine, make the least mention of glasses of any kind; we may therefore venture to affirm that the subterraneous fires have there never produced them.

If from Europe we pass to the three other quarters of the globe, we shall find in each a great number of volcanos, which it would be superfluous to enumerate particu-

* Voyages de M. de Thevenot, Prem. Part. † Voyage du Levant.

larly,

larly, ſuch an enumeration having already been made by Faujas, Buffon and others. I ſhall only mention thoſe which afford products that have relation to our preſent ſubject.

We read that the iſland of Ternate in Aſia throws out a conſiderable quantity of pumices, as does likewiſe one of the numerous volcanos of Kamſchatka.

As to thoſe of Africa, we have but very imperfect accounts of them, with the ſingle exception of the peak of Teneriffe, one of the loftieſt of volcanos; which, with reſpect to its ſituation, height, form, and crater, and the hot fumes which iſſue from it, has been accurately deſcribed by the Chevalier Borda. But it were to be wiſhed that we had a more complete deſcription of the materials of which it is compoſed; as the French traveller only tells us that they are "ſand, black and red calcined ſtones, pumices, and flints of different kinds *."

It admits of no doubt that the higheſt mountains of America, as Chimboraço, Coltopaxi, Sangai, Pichencha, &c. form a chain of burning volcanos, the largeſt exiſting in nature. We are indebted for the accounts we have of them to M. Bouguer; but theſe are ſuch as only tend ſtrongly to excite our curioſity without gratifying it. With reſpect to what relates to our preſent enquiry, we only learn from this writer, that "ſome mountains in the vicinity of Quito are compoſed entirely to a great depth of ſcoriæ, pumices, and fragments of burnt ſtones of every ſize †." As to volcanic glaſſes, he does not make the ſlighteſt mention of them; though it is well known that the famous gallinaceous ſtone, which is univerſally acknowledged to be a moſt beautiful American volcanic glaſs, of a black colour, is found in Peru, and that, according to M. Godin, there is a mine of it, ſeveral days journey from Quito.

If we now conſider thoſe parts of theſe imperfect accounts which relate to glaſſes and pumices we ſhall find, with reſpect to the former, that the much greater part of volcanos produce none, and that thoſe which do produce them, as in the Neapolitan territory, Iceland, and Peru, are by no means to be compared in this reſpect with Lipari and Vulcano. The ſame may be aſſerted of Alicuda and Felicuda, the glaſſes of which, though abundant in many parts of thoſe iſlands, are only found in flakes and fragments. Theſe obſervations might likewiſe be applied to the pumices, did not the immenſe quantity of them in the iſland of Santorine equal if not exceed, that of the two Eolian iſlands above mentioned.

If we conſider the volcanos known to us under one general point of view, we ſhall find that, though they have changed into lavas an infinity of rocks, by which they have produced mountains and iſlands very conſiderable both in number and dimenſions, it is very rarely that they vitrify the ſubſtances expoſed to their fires. Reflecting on the immenſe quantities of vitrifications at Vulcano and Lipari, which are almoſt all derived from feltſpars and petroſilex, the idea ſuggeſted itſelf to my mind, whether ſo great an abundance in theſe two places, and ſo great a ſcarcity in others, might not be attributed to theſe ſtones being here extremely abundant, and very rare elſewhere. But this ſuppoſition does not accord with fact; as we have ſeen in many other volcanic tracts, which I have deſcribed, and ſhall deſcribe when I come to ſpeak of the Euganean mountains, that both theſe ſtones may be changed into lava without that lava exhibiting the ſlighteſt appearance of glaſs. On the other hand, we have ſhewn that, beſides feltſpar and petroſilex, many pumices have for their baſe the horn-ſtone and aſbeſtus, and many granite, as M. Dolomieu has obſerved. I am therefore of opinion, that the cauſe which has produced them ſhould rather be ſought in the volcanic fire, which rarely has ſufficient activity to vitrify the ſtones and rocks on which it exerts its power; though I

* Voyage en diverſe Parties de l'Europe. † Acad. Royale des Sciences, 1774.

grant that the petrosilex and feltspar are more adapted to this vitrification than other stones. To produce a lava, a certain degree of heat is necessary; and a still greater to convert it into pumice. The lavas, at least those of the compact species, usually preserve the grain, hardness, and sometimes the weight and colour of the primordial rock; but the greater part of these external qualities disappear in the pumice, from the stronger action of the fire. This must operate still more in glass, in which the homogeneity and fineness of the paste efface every trace of its primitive texture.

These gradual transitions of lava into pumice, and pumice into glass, I have several times observed, and indeed have already described, in the same volcanic piece. It has also been observed, that a lava frequently passes immediately into perfect glass, which must be caused by a sudden heat, greater than that required to change it into pumice. This theory satisfactorily explains why some volcanos produce pumices, but never glass; as may be remarked of Santorine. Their fires are only sufficiently powerful to generate pumices, but not to produce glass; an observation applicable to the prodigious eruption from the sea described by Thevenot. On the contrary, at Rotaro in Ischia, at Vesuvius, and other parts of the Phlegræan Fields, as also at Vulcano, Lipari, Felicuda, and Alicuda, glasses are found mixed with lavas; which shews that the fire has acted unequally in those places. It is to be remarked, at the same time, that the heat requisite for vitrification is not of the most violent kind, as I have shewn in Chap. XVI.

We must however observe, that as the production of compact lavas is a secret which Nature has hitherto reserved to herself; since we are unable to imitate them with our common fires; so also are we ignorant of the precise causes of the formation of pumices. Among some thousands of fusions which I have made in the furnace, both of lavas and primordial rocks and stones, those likewise from which pumices are most frequently produced as petrosilices and feltspars, I never obtained a product which could be said to possess all the characteristics of pumice. It has always been either a glass, an enamel, or scoriæ; nor do I remember to have read or heard, that among the innumerable experiments which chemists have made upon earths with fire, the result ever was a true pumice: and though in lime-furnaces we may frequently observe a change of certain stones into glass; yet they never produce lavas similar to the volcanic; and equally incapable are they to form pumices. It cannot be alleged that the fire of our furnaces is too strong to induce that slight degree of vitrification which characterizes pumices; since, when I have used a more moderate fire, the substances on which I made my experiments have either not melted, or been more or less vitrified.

I shall conclude these observations on the pumices of Lipari with a remark relative to their colour. Except a few that are dark, they are all white as snow. Hence the mountain of Lipari, which forms the great magazine of these stones, is called *Campo Bianco* (the White Fields): but certainly there must have been a time when it should have been denominted *Campo Nero* (the Black Field); at least it is certain that pumices when newly ejected from volcanos are of a black colour. This remark, which has been omitted by almost all who have made observations on this subject, who content themselves with saying that this or the other volcano throws out pumices, has been expressly made by Don Gaerteno de Bottis in his "History of the Conflagrations of Vesuvius*." He tells us, the pumices ejected at various periods by this volcano are black. He likewise remarks, that on comparing them with those which overwhelmed Pompeii, he found them perfectly similar in their structure. Their whiteness, was subsequently acquired, and probably was caused by the impressions of the atmosphere.

* Istoria di varj Incendj del Vesuvio.

Before

Before I conclude theſe obſervations on the Eolian iſles, I think it neceſſary to ſay a few words on a ſubject which has a relation to the productions of Vulcano and Alicuda, and on which the opinions of modern naturaliſts are divided; I mean the baſaltiform lavas which are found within the crater of the former iſland, and along the ſhores of the latter *, and which by their conformation cannot but remind the reader of the enquiries and diſputes which have taken place within theſe few years relative to the origin of baſaltes. To repeat all that has been written on the ſubject would fill a volume; but I am far from purpoſing to tire either my own or the reader's patience in any ſuch manner. It, beſides, appears to me that this long agitated queſtion may, at preſent, be determined without any very prolix augmentation. Literary diſputes and differences of opinion frequently ariſe from want of previouſly fixing the ſtate of the controverſy; that is, from not defining in preciſe and clear terms the thing in queſtion. Before we enquire what is the origin of baſaltes, that is to ſay, whether they are the reſult of the action of fire or water, it will be proper to decide what we mean by the term: or rather what the ancients underſtood by this word, which is the name they gave to a certain kind of ſtones. It is now generally known, becauſe it has been repeated by a hundred writers, though perhaps by the greater part without due conſideration, that the word baſaltes is uſed by Pliny and Strabo to denominate an opake and ſolid ſtone, of the hardneſs, and nearly of the colour of iron, commonly configurated in priſms, and originally brought from Ethiopia; of which ſtone the Egyptians made ſtatues, ſarcophagi, mortars, and various utenſils. This premiſed, it remains to enquire whether this ſtone was of volcanic origin or not, by repairing to the places where it was found, and attentively examining the country to diſcover whether it bears the characteriſtics of volcanization. This labour however has not, to my knowledge, been hitherto undertaken by any one; but M. Dolomieu, to whom lithology and the hiſtory of volcanos are ſo much indebted, has diſcovered, during his ſtay at Rome, an equivalent, in ſome meaſure, with reſpect to the ſolution of this queſtion. Among the many noble monuments in that ſuperb capital which are inſtructive not only to the admirers of the arts, but to the contemplators of nature, are a great number of ſtatues, ſarcophagi, and mortars brought from Egypt, which have all the characters attributed to baſaltes, and likewiſe preſerve the name. Theſe he has ſtudied with the greateſt attention, and declares that the ſtone of which they are formed manifeſts no ſign of the action of fire. Among other Egyptian monuments, he obſerved ſome of a green baſaltes, which change colour, and aſſume a brown tinge, ſimilar to that of bronze, on being expoſed to the ſlighteſt heat. All thoſe that have been burned have acquired this colour; which proves, as he very judiciouſly obſerves, that the green baſaltes have never ſuffered the action of fire †.

The Egyptian ſtones, therefore, to which the ancients gave the appellation of baſaltes, have been produced by Nature in the humid way. Theſe obſervations perfectly agree with thoſe of Bergmann on the trapps produced in the ſame way; and which have, both externally and internally, the ſame characterſtics with the baſaltes ‡.

Werner, taking the term baſaltes in a wider ſenſe, and underſtanding by it all thoſe columnar ſtones which, by their priſmatic configuration, reſemble the Egyptian baſaltes, ſuppoſes both to have the ſame origin, and adduces as a proof of that origin, the baſaltes of the hill of Scheibenberg, which are the effect of a precipitation by means of water; and concludes that "all baſaltes are formed in the humid way ‖."

Though I am willing to beſtow the praiſe due to his diſcovery, I cannot admit his concluſion; for though many baſaltes, taking that term in the ſenſe of this author and

* See Chaps. XIII. and XVII.
† Rozier, tom. xxxvii. an. 1790.
‡ De Productis Vulcanicis.
‖ Rozier, tom. xxxviii. an. 1791.

other

other naturaliſts, may derive their origin from water, many others are certainly the product of fire.

I ſhall not repeat what various volcaniſts have writen on this ſubject, but merely refer the reader to what I have already ſaid relative to the baſaltine lavas of Vulcano and Felicuda. With reſpect to the former iſland, I have remarked in Chap. XIII. that I found within its crater a range of articulated priſms, with unequal ſides and angles, which in part compoſed one whole with a maſs of lava; and, in part, were detached from it. I have alſo there deſcribed the qualities and nature of theſe priſms. In Chap. XVII. I have particularly deſcribed the littoral lavas of Felicuda, which, near the water, are priſmatic.

It is therefore evident, that in theſe two ſituations the origin of the baſaltes there found cannot be what it has been aſſumed generally, by Werner and other Germans, but that it is truly volcanic. It conſequently appears that Nature obtains the ſame effects by two different ways. In the foſſil kingdom, one of her grand operations is cryſtallization; which, though it be moſt frequently effected in the humid way, is ſometimes produced in the dry; as we ſee, among other inſtances in iron, which Nature cryſtallizes within the earth, both by the means of water and of fire, in which latter way the beautiful ſpecular iron of Stromboli is produced *. Nor are there wanting other inſtances, of the cryſtallization of the ſame metal by the action of fire. And did other metals exiſt in the entrails of volcanos, and the neceſſary circumſtances concur to their cryſtallization, it is indubitable that this may be effected by fire as well as by water. Thus we ſee that, by taking certain precautions, metallic ſubſtances aſſume a regular and ſymmetrical diſpoſition within the crucible. The ſame is true of baſaltes, the priſmatic configuration of which, though not ſtrictly a cryſtallization, has the moſt exact reſemblance to it. Obſervation likewiſe teaches us that the ſame combination of earths, according to different circumſtances, forms priſmatic baſaltes, ſometimes in the humid, and ſometimes in the dry way. The ſtone called trapp, found in the mountains of Sweden, is configurated in priſms, though thoſe mountains are of aqueous origin; and the horn-ſtone, which is ſo analogous to the trapp, has the ſame configuration at Felicuda, notwithſtanding it is a true lava. In the ſame iſland, likewiſe, other baſaltiform lavas have for their baſe ſhoerl in maſs, and thoſe of the crater of Vulcano, the petroſilex; which two ſtones, according to the obſervations of M. Dolomieu, form ſome of the Egyptian baſaltes, which are a work of the waters. Theſe two agents, fire and water, are not, in fact, ſo different in their action as we might at firſt be inclined to imagine. The priſmatic figure in the humid way ariſes in the ſoft earth by the evaporation of the water; in conſequence of which the parts dry, contract their volume, and ſplit into polygonal pieces. The ſame phenomenon may be remarked in margaceous earths, imbued with water, and expoſed to the ventilation of the air; and I have frequently ſeen the mud of rivers, when dried in the ſun in ſummer, to make potteryware, divide, when it became dry, into ſmall polyedrous tablets. Similar configurations are produced in different lavas by the congelation and contraction that take place by the privation of the fire which held them in a ſtate of fluidity.

It appears to me, therefore, that the diſpute relative to the origin of baſaltes is at an end; nor would there be any difference of opinion if, inſtead of generalizing ideas and fabricating ſyſtems, naturaliſts would make an impartial uſe of their own obſervations and thoſe of others. Some volcaniſts, perceiving that the generation of various baſaltes is evidently igneous, have immediately inferred that all muſt have the ſame origin. In

* See Chap. XI.

conſequence

conſequence of this principle, they have drawn lines or zones in different parts of the globe, indicative of extinct volcanos, which they have inferred from finding baſaltes there; and thus pourtrayed a picture of prodigious dimenſions, repreſenting the ruins cauſed in the world by ſubterranean conflagrations. Other naturaliſts, on the contrary, being convinced that certain baſaltes are the produce of water, have aſſigned to all the ſame origin. From the facts now adduced, it is however ſufficiently evident that both theſe hypotheſes are erroneous. The baſaltes, taking the term generally, when examined detached, do not bear excluſively any deciſive marks of their origin. Local circumſtances alone can determine to which of the two principles it is to be aſcribed; to diſcover which we muſt attentively examine whether the places where theſe figured ſtones are found exhibit any indubitable ſigns of volcanization. Yet even theſe are frequently not ſufficient, as there are many hills and mountains which owe their origin to both the great agents of nature, fire and water; in which caſe it will be neceſſary to redouble our attention, and fix it on the ſubſtances originating from each; to determine, by the relations theſe have to the baſaltes, from which of the two the latter derive their formation. By diligently employing theſe means, we ſhall be certain, without fear of error, to elucidate, and advance the enquiries relative to baſaltes, and be enabled accurately to determine which of them are to be aſcribed to the action of water, and which to that of fire.

But here a ſecond queſtion occurs, not leſs intereſting than the firſt, relative to the cauſe why certain lavas, differing from innumerable others, become baſaltiform; ſince, if this configuration depended on congelation, it muſt be found in all lavas when they had ceaſed to flow. The firſt writer, to my knowledge, who has adverted to this is M. de Luc, who, in the ſecond volume of his Travels, is of opinion that they have taken this regular figure in the ſea, by the ſudden condenſation which took place on their flowing into it in a liquid ſtate; other ſecondary circumſtances, however, concurring, ſuch as a greater homogeneity, and a certain attraction of their parts.

Of the ſame opinion is M. Dolomieu; though he does not deny that even porous lavas may ſometimes likewiſe take the form of priſms. The former of theſe opinions is little leſs than hypothetic, while the latter is ſupported by facts too important to be curſorily ſtated. M. Dolomieu obſerves that all the currents of the lavas of Etna, the periods of which are preſerved in hiſtory, have conſtantly experienced two effects in their congelation. Thoſe which have cooled in the air have divided, in conſequence of the contraction they have ſuffered by the loſs of their caloric (heat), into irregular maſſes; while all the others, which have precipitated into the ſea, have, on their ſudden congelation, contracted in a regular form, and divided into priſmatic columns, which form they have only taken in the parts in contact with the water of the ſea. Of this he met with evident proofs along the ſhore which extends from Catania to Caſtello di Jaci; and the famous lava of 1669, though unapt to the priſmatic form, from being ſpungy and little in quantity, yet in ſome parts exhibits a kind of rude imperfect priſms.

Among the objects to which I was attentive in my volcanic travels through the two Sicilies, the priſmatic lavas were certainly not the laſt. While making the circuit of the Eolian iſlands, of Etna and of Iſchia, I conſtantly obſerved carefully the conformation of the ſtony currents which fall into the ſea. I have remarked when treating of Iſchia, that this configuration is frequently priſmatic, and that the priſms are conſtantly formed in thoſe parts of the currents which immerge into the water, and reach to a few feet above the level. This obſervation of mine certainly accords admirably with thoſe of M. Dolomieu; the ſituation of theſe priſms clearly ſhowing that they were formed at the time of the immerſion of the lava into the ſea, which, when it flowed, roſe to where they begin to appear. But, though I agree with him in this I cannot in the remainder

remainder of my obſervations. Alicuda, as well as Felicuda, preſents us with numerous currents and rocks that deſcend into the ſea; and they are likewiſe found at Saline, Lipari, Stromboli, Panaria, Baſiluzzo, and Vulcano; but theſe rocks and currents, which together extend over a ſpace of more than ſixty miles, do not afford the ſlighteſt indications of priſms.

As I went by ſea from Meſſina to Catania, and returned to Meſſina from Catania, I had an opportunity twice to examine, at my leiſure, that tract of ſhore, which, for the ſpace of nearly three-and-twenty miles, is volcanic. One third of it, beginning at Catania, and proceeding to Caſtello di Jaci, conſiſts of priſms more or leſs characterized, and ſuch as they have been deſcribed by M. Dolomieu; but the other two thirds, though equally compoſed of lavas with the former, and for the moſt part falling perpendicularly into the ſea, have no ſuch figure; and only preſent, here and there, irregular fiſſures and angular pieces, ſuch as are generally obſervable in all lavas, which ſeparate more or leſs on their congelation.

In my circuit by ſea round the ſhores of Iſchia, I was particularly attentive, as I was every where elſe, to the conformation of the lavas; and here and there ſeemed a great probability of finding them priſmatic, from the abundance of them which in different directions and angles fall into the ſea: but I have already obſerved, when treating of the iſland, and I now repeat it, that I did not find one with a regular form.

At Naples, the priſmatic lavas of the currents of Veſuvius, under the park of Portici, have been much ſpoken of. When I made my obſervations on this burning mountain I had not time to viſit theſe lavas. It is with great pleaſure therefore that I learn they have been examined by a perſon ſo well experienced in matters of this nature as the Chevalier Gioeni undoubtedly is. But the celebrated priſms diſappeared in the preſence of ſo accurate an obſerver. The following is the account he gives; which is of conſiderable importance to our preſent ſubject:—"I wiſhed to examine the baſaltes which were pointed out to me as to be found on the ſea-ſhore, under the Royal Park of Portici; but they proved to be only a compact lava, with perpendicular and extremely irregular fiſſures, forming quadrangular, and ſometimes trapezoidal pilaſters, which have been employed in buildings. Similar fiſſures are likewiſe obſerved in tufas, and earths of different kinds, and can never miſlead any perſon accuſtomed to them, and acquainted with their true cauſes."

By this faithful relation of facts I flatter myſelf I have clearly ſhewn that it cannot be ſupported as a general hypotheſis, that flowing lavas take a priſmatical configuration from the ſudden coagulation they ſuffer on falling into the ſea.

It may perhaps be objected, that theſe priſms once exiſted in the lavas I obſerved, but that the irreſiſtible violence of the waves, in a long ſeries of years, has corroded and deſtroyed them.

Every perſon acquainted with the ſubject muſt immediately perceive how little ſolidity there is in this objection. I admit that the violence of the ſea may, in ſome lavas, have totally deſtroyed theſe priſms; but that it can have had that effect on all, and through ſo extenſive a ſpace is utterly improbable. Nor is it conceivable that Felicuda, among the Eolian iſles, ſhould ſtill preſerve its priſms perfect, while the reſt of thoſe iſlands have entirely loſt theirs, notwithſtanding they are all equally expoſed to the ſhocks of the waves.

I cannot here omit another remark. It is certain that more than one of theſe iſlands were not formed by one eruption, but by ſucceſſive ejections of lavas accumulating on each other; and in ſome deep fiſſures, occaſioned by the ſea, this ſucceſſive formation is diſcoverable by the eye, as we may perceive five or ſix different ſtrata of lava one

above the other. The internal ſtrata in very remote periods having flowed into the ſea, as the external flowed afterwards; it is evident that if the latter on touching the water became priſmatic, the ſame change muſt have taken place alſo in the former; which being defended from the injuries of the ſea by the external ſtrata, muſt ſtill preſerve their priſmatic configuration, of which however no traces remain. We muſt therefore conclude that innumerable lavas may fall into the ſea, without having their external appearance in the leaſt changed by the ſudden congelation which then takes place.

That the priſmatic configuration of lavas is not always the effect of their immerſion in the waters of the ſea, likewiſe appears from many of them taking the ſame form in the air; of which we have a diſtinguiſhed example in the crater of Vulcano. Here certainly we cannot ſuppoſe any intervention of the waters of the ſea. Similar obſervations have been made on Mount Etna by the Chevalier Gioeni. "I have obſerved," ſays he, in the work before cited, "baſaltic columns at the ſummit of Etna, and nearly on a level with the baſe of its vaſt crater, where there is certainly no probability of the ſea ever having reached; and I have frequently found polyhedrous baſaltes perfectly characterized in excavations made by men in the centre of lavas, which have iſſued from the ſides of Mount Etna, in periods much poſterior to the retiring of the ſea."

I ſhould, however, appear deficient in candour, did I not mention that M. Dolomieu admits that lavas may ſometimes in the air aſſume the priſmatic form, if they fall into clefts and fiſſures where they ſuddenly cool, of which he adduces an example in the iſlands of Ponza.

I ſhall only remark, that I do not perceive the abſolute neceſſity of the fiſſures in this caſe; ſince we frequently find lavas with this configuration in perfectly open places, as I have ſeen in the great mouth of Vulcano. And with this opinion the obſervations of Gioeni on Etna certainly accord; for had he remarked the concurrence of ſuch a circumſtance, he undoubtedly would have mentioned it.

What concluſion then ought we to deduce from all theſe facts and obſervations?

Firſt: that many baſaltiform lavas have aſſumed this organization on coagulating within the ſea.

Secondly: that others have taken the ſame form, merely in cooling in the open air.

Thirdly: that innumerable other lavas have not taken this figure, either in the ſea or in the air.

It appears at firſt view that theſe differences depend on the different nature of the lavas themſelves. This opinion at leaſt is rendered probable by what we obſerve in earths penetrated with water, which in drying take more or leſs priſmatic forms, as has been obſerved frequently in the argillaceous kinds. I have ſeen when a turbid torrent has been introduced into a ditch through an argillaceous marle, the latter in drying divide into polyhedrous pieces; but when the water paſſed through chalk, or calcareous marle, the greater part of the pieces were amorphous. When we however obſerve lavas with requiſite attention, this conformation in them ſeems to be effected differently.

It has already been ſaid, that ſeveral of the priſmatic lavas of Felicuda have for their baſe ſhoerl in maſs; but it is true that other congenerous lavas of the ſame iſland, which form as it were walls perpendicular to the ſea, are ſmooth over their whole ſuperficies. A ſimilar ſmoothneſs is obſervable in ſome of thoſe of Mount Etna, on the ſhore between Meſſina and Catania, which have for their baſe the horn-ſtone; though others extremely reſembling them, between Jaci Reale and Catania, are formed in priſms.

Compactneſs and ſolidity are likewiſe not a neceſſary condition in lavas, to this appropriate cryſtallization. This has already been remarked by M. Dolomieu; and I

have obſerved that many amorphous lavas on the ſhores of ſeveral of the Eolian iſlands are more compact than the priſmatic lavas of Felicuda.

What then can be the intrinſic circumſtance of the lava which determines it thus to cleave in the priſmatic form? I confeſs I am ignorant: and who can ſay that we do not ſeek it in vain within the lava, ſince it may be extrinſic and adventitious? Such certainly appears to be the opinion of M. de Luc; and more expreſsly that of M. Dolomieu, who, to explain the phenomenon of volcanic priſms, has recourſe to a ſudden congelation, and inſtantaneous contraction of lavas.

The facts which we have adduced relative to lavas, both priſmatic and not priſmatic, it has been ſeen, do not always accord with thoſe related by the French naturaliſt. But even on this ſuppoſition, which is inconteſtable, may we not retain the ſame principle of explanation, which, to ſay the truth, appears to be ſufficient, with ſome requiſite modifications? Theſe I will endeavour to ſuggeſt, illuſtrating my conjecture by the two caſes above adduced; the one, that of the lavas which take the form of priſms merely from the contact of the atmoſphere, as in Vulcano and near the ſummit of Etna; the other, that of the lavas which refuſe to take ſuch a form even within the ſea, as at Iſchia, in ſome parts of the baſe of Etna, and in all the Eolian iſles except Felicuda.

As to the former, may not a ſudden coagulation and contraction have taken place in ſome lavas from the mere influence of the atmoſphere, though the lava was not included in any cleft or fiſſure? It is ſufficient that it be ſuddenly deprived of the caloric (heat) by which it is penetrated, and which rendered it rarefied and fluid. To this deprivation a lava of little thickneſs will be very liable, ſince a body loſes its heat the ſooner the leſs its thickneſs and denſity. This ſudden contraction may alſo be produced by the circumſtances of the atmoſphere; as ſhould a ſtrong wind, of a very cold temperature, blow at the time. The melted lavas in our crucibles will be found to give greater weight to this latter conjecture. If they are taken from the furnace, and cauſed to paſs through a heat gradually leſs; their ſurface, as they cool, will only ſplit in a few cracks, of little depth, and uſually irregular; but when they are immediately, in the winter time, carried into the cold air, the fiſſures, beſides being deeper, will frequently be diſpoſed in ſuch a manner, as to form ſmall polyhedrous priſms, which may eaſily be detached from the reſt of the lava.

With reſpect to thoſe lavas which do not aſſume a priſmatic form though they fall into the ſea, it is certain that, to take that conformation, their maſs muſt have a ſtrong degree of effervеſcence and dilatation, and that it muſt be deeply penetrated with the igneous fluid, otherwiſe the contraction neceſſary to produce priſms cannot take place. But many currents which deſcend from the ſummit of burning mountains to the ſea, muſt have loſt their effervеſcence with their heat in ſo long a courſe, and ſcarcely contain ſufficient to continue their motion downwards, which perhaps would ceaſe, were it not for the impelling gravity of the lava, which frequently falls into the ſea perpendicularly.

Such is the hypotheſis by which I would explain the cauſe why ſome lavas have aſſumed a priſmatic conformation without any concurrence of the ſea-water, and others exhibit no appearance of it in places where they have immerged into the ſea. I nevertheleſs leave every one to form his own opinion; and ſhould an explanation of theſe important facts be diſcovered preferable to mine, which I conſider as only conjectural, I ſhall receive the communication of it with ſincere gratitude, and adopt it with pleaſure.

CHAP.

CHAP. XXIV.* — CONCLUSION OF THE ACCOUNT OF THE EOLIAN ISLES, IN REMARKS ON VARIOUS SUBJECTS NOT VOLCANIC.

I. Lipari.—*Population of that island.—Useful vegetables produced in it; among which the vine furnishes the most considerable branch of its commerce.—Celebrated malmsey of this country.—Manner of making that wine.—Scarcity of corn, which might be rendered more plentiful by adopting a different system of agriculture.—Great abundance of Indian figs in Lipari and the other Eolian islands.—Delicious taste of their fruit.—Description of that shrub; and remarks on the facility with which it may be multiplied.—Project to render it much more profitable by making use of its leaves to nourish the cochineal insect, as silk-worms are fed with the mulberry leaf.—Fishes and coral found near the shores of Lipari.—Account of a physeter, or kind of whale, observed by the author in that sea.—This fish, though internally organized nearly like others of the mammalia class, could remain under water a much longer time than they usually can.—Very few cattle of any kind in Lipari.—Cause of this scarcity.—Rabbits the only wild quadruped in this island.—Manner of hunting them with the ferret.—Stationary birds at Lipari but few; nor any birds of passage, at least at the time the author was there.—Some which with us are birds of passage, there stationary.—Curious manner of taking swallows in the streets of the city in winter.—Branches of foreign commerce which have begun to be introduced at Lipari within these few years.—Remarks on the assertion of Strabo, Diodorus, and Dioscorides, that Lipari derived a considerable profit from the sulphate of alumine (alum).—Political and ecclesiastical state of Lipari.—Physical and moral character of the Liparese.—Brief account of the city of Lipari.*

II. Stromboli.—*The great heat felt in this island not to be attributed to its volcano, but the sun.—Nature of this climate.—Frequency of tempests.—The shore of Stromboli destitute of a harbour.—Vessels used by the natives to navigate these seas.—The great quantity of fish taken in the vicinity of this island, probably a consequence of the heat of its volcano.—Plants which grow in this island.—Malmsey the principal product of the country.—Vines, and the manner in which they are defended from the wind.—Number of inhabitants.—The natives not fearful of their volcano.—Hospitality of the Strombolese.—Their character.—Account of a spring, the only one in the whole island.—Animals found in Stromboli.*

III. Vulcano.—*An uninhabited island.—Great quantities of sulphate of alumine (alum) once extracted here.—Difficulty of the extraction of it at present.—More profit might be derived from planting vines.*

IV. Saline.—*Abundance of grapes in this island.—Spring near the shore, probably supplied by rain water.—Muriate of soda (sea-salt) extracted from a small lake contiguous to the sea.—Means of procuring this salt.—Curious phenomenon observable in this lake, when the sea water enters it.*

V. VI. Felicuda and Alicuda.—*Their population.—The houses built not on the shore, or at the foot of these mountainous islands, but about half way up their declivity, that they may be less exposed to the incursions of the Barbary pirates, who formerly have frequently landed there in search of plunder.—Such incursions sometimes still made at present.—Well-grounded fears of travellers in sailing round these islands.—Useful vegetables in Felicuda and Alicuda.—The corn of Alicuda excellent, though produced but in small quantity.—Extraordinary industry of the inhabitants in its cultivation.—Fishing-boats of these islands.—Ridi-*

* Some chapters of a theoretic nature are omitted.

culous and ſuperſtitious practice of the inhabitants when a huſband or wife dies.—Boaſt of the people of the Lipari iſlands in general, that thoſe iſlands contain no kind of ſerpent.—Phyſical reaſon of this fact.—Extreme ſcarcity of inſects there, and the cauſe.—Enviable tranquillity and content of the inhabitants of theſe iſlands.—Salubrity of the air.—Advantages experienced from that ſalubrity by the author during his ſtay there.—Compariſon between this very pure air, and that of ſome of the low plains of Lombardy.

TO complete my obſervations relative to theſe iſlands, I ſhall now proceed to give a conciſe account of their population, the character, manners, and cuſtoms of the inhabitants, their commerce, the animals ſtationary and migratory found in them, and other analogous objects, agreeably to what was propoſed in the introduction to this work.

I. LIPARI.—This iſland is the largeſt and much the moſt populous of thoſe called the Eolian iſles, the number of its inhabitants amounting to between nine and ten thouſand, a conſiderable part of whom reſide in the city of the ſame name, which is very ancient, as it appears from hiſtorical records that it exiſted before the war of Troy *.

If the iſland of Lipari be divided into four parts, about two and a half will be found to be cultivated, and the remainder overgrown with wood and barren. Theſe barren tracts, however, continually diminiſh, and are converted into fruitful fields, from a kind of neceſſity ariſing from the continually increaſing population of the iſland.

Lipari produces cotton, pulſe, and olives, though in but ſmall quantities. The corn produced there, and which is of an excellent quality, amounts annually to fifteen hundred Sicilian *ſalme* †, or two thouſand at moſt, and is ſcarcely ſufficient to ſupply the city.

Among the uſeful productions of this iſland the principal are grapes, of which there are ſeveral kinds. The firſt furniſhes the common wine which is drunk in the iſland, and of which there is ſo great an abundance, that they export annually two, and even three thouſand barrels (*barilli*) of it without the leaſt inconvenience. They preſs the grapes on the ſpot where the vines grow, and carry the muſt, in leather bottles, to their reſpective houſes on beaſts of burthen.

The paſſola and paſſolina, as they are here called, are two other kinds of grapes that are dried. The laſt is that ſort which is uſually called the Corinthian grape. Of this they commonly ſell ten thouſand barrels annually; and of the other about twelve thouſand.

From a fourth kind of grape is made the famous malmſey of Lipari, which name alone is ſufficient for its eulogium. It is a wine of a clear amber colour, at once generous and ſweet, which fills and warms the mouth with an agreeable fragrance, and a return of ſweetneſs ſome time after it is taſted. But as nature uſually beſtows on man her moſt precious gifts with a ſparing hand, this grape is here ſcarcer than any other; and does not furniſh at moſt more than two thouſand barrels annually, which the Liparеſe ſell for foreign markets, as they do alſo the paſſola and paſſolina. During my ſtay in the iſland, I could ſcarcely procure a ſufficient quantity to revive my ſpirits after my fatigues, and carry with me a ſpecimen of this rare and delicious liquor to Pavia.

I was deſirous to learn the method employed by the natives in making malmſey. It is as follows: they do not gather the grape until it is perfectly ripe, which is known by its beautiful yellow colour and the ſweet taſte it acquires. When the grapes are ga-

* See Chap. XVI.

† A *ſalma* contains 16 *tumuli*, the *tumulo* from 20 to 22 *rotoli*, and the *rotolo* 2½ pounds.—*Stolberg's Travels*, vol. ii. p. 506.

thered,

thered, the rotten and ſpoiled berries being firſt picked out, they are expoſed to the ſun on mats made of reeds for eight or ten days, or ſometimes longer, till they are dried. They then place them on a clean ſtone floor, ſurrounded with a kind of low wall, about two feet high, where they cruſh them, firſt with a ſtone faſtened to the end of a ſmall ſtaff or handle, and afterwards with their naked feet, till all the juice is expreſſed; which is then let run off through an aperture to another ſimilar floor, the ſides of which are higher; and here the muſt is all collected. It is afterwards drawn off into veſſels in which it is left to ferment, till it is perfectly depurated and become fit to drink, which it is by the following January.

The vintage is in the month of September, at which time the Lipareſe, leaving the city, reſort in companies to ſome cottages near the vineyards, where they remain during the gathering of the grapes, reſigning themſelves to mirth and innocent pleaſures; and the voyager, who chances to approach the iſland at that ſeaſon, finds his ſurpriſe not a little excited by the numerous lights which are exhibited during the night, and illuminate and embelliſh theſe ruſtic habitations.

Another plant, if it does not form a branch of foreign commerce, is yet of ſome domeſtic utility to the Lipareſe: I mean the opuntia, commonly called the Indian fig. (*Cactus Opuntia, Lin.*) This ſhrub with us will not live through the winter, except it is preſerved in hot-houſes; and being in a climate not congenial to its nature, grows to no great height, and produces but few fruits, and thoſe ſmall and of no worth. At Lipari, on the contrary, and in the other Eolian iſlands, it thrives ſo well that it uſually grows to the height of ten, twelve, and ſometimes fifteen feet, with a ſtem a foot or more in diameter. The fruits, which are nearly as large as a turkey's egg, are ſweet, and extremely agreeable to the palate, and of very eaſy digeſtion. When unripe, their ſkin or rind is green; but when ripe, of a reddiſh yellow. This plant will take root and grow, in a ſurpriſing manner, in almoſt any ſituation which has a favourable aſpect, and the moſt favourable is the ſouthern. It thrives alike in the pooreſt and the richeſt ſoils, the fiſſures of lavas, among the ruins of ancient buildings, on fragments of dried mortar, and in the crevices of walls. It is well known that the fruits grow at the edges of the leaves; the number on each leaf is not conſtant, but they are frequently numerous, as I have counted two-and-twenty on a ſingle leaf. They begin to ripen about the beginning of Auguſt, and continue to November. In ſome ſituations, indeed, where they enjoy the benign influence of the ſun, they remain through the whole winter; and even where they have not that advantage, they may be preſerved ripe and in good condition during the winter, by being gathered green in autumn, and left attached to the whole or a part of the leaf, the juice of the leaf, which is always thick and pulpy, affording a nutriment to the fruit.

The inhabitants of Lipari eat theſe fruits during ſeveral months of the year; for as there is great abundance of them, they are ſold at a very low price. Beſides thoſe which nature produces here ſpontaneouſly, the Lipareſe induſtriouſly cultivate great numbers of theſe Indian figs, and the method of multiplying them is very eaſy. It is well known that this plant is propagated by means of the leaves, which are of an oblong ſhape, narrower at one extremity than at the other, and reſembling a peel or ſhovel, by which name they are called by the Sicilians. Every leaf is thick and pulpy, and each ſide of it ſcattered over with ſmall buttons or knobs, from which ariſe a great number of little prickles, with a large one in the centre, of the length of an inch. If theſe buttons only touch the earth they take root, let the ground be what it may. The leaf which has taken root puts forth other leaves that again produce others; and from being flat, as it was at firſt, becomes in time round, and forms a trunk which lengthens and thickens

thickens in proportion as the other leaves grow and multiply. For the ſtem or trunk of the Indian fig, which, as I have already ſaid, is ſometimes more than a foot in diameter, is only a ſeries of leaves in an upright poſition, and adhering to each other.

Such are the different vegetable productions of the iſland of Lipari, which however, with reſpect to commerce, may be reduced to one only, I mean the grape. Corn, as we have ſeen, from its ſcarcity, ſcarcely deſerves to be mentioned; but this might be grown in far greater quantity, were the ſyſtem of agriculture prevalent at preſent in this iſland changed. It is here the general practice to raiſe the vines two or three feet above the ground, and with poles and reeds to form a kind of ſquares by which they are ſupported. The conſequence is, that the vines with their branches and leaves form a kind of covering, impenetrable to the rays of the ſun, which renders the ſoil below entirely barren. Several of the natives of Lipari have had the good ſenſe to perceive the inconvenience of this practice, and, diſregarding the prejudices of their countrymen, have changed theſe pieces of barren ground into fruitful corn-fields, without the leaſt detriment to the fruit of the vine. The Abbate Gaetano Trovatini, whom I have elſewhere mentioned with deſerved commendation, is among the number of the few who have made this liberal experiment. I ſaw a field of his which, though not very extenſive, nor of a better ſoil than others, produced both a plentiful harveſt and an abundant vintage. Inſtead of planting the vines in the narrow ſquares there called *pergole*, he has ranged them in parallel eſpaliers with wide interſtices of ground between them, in which he has ſown corn in ſtraight furrows, after the method of Du Hamel. Thus the air and the ſun exert their influences freely between the eſpaliers, and not a foot of ground is loſt to cultivation. The grain yields a luxuriant crop, and the vines are at the ſame time not leſs fruitful than thoſe of the neighbouring grounds, where the old method is adhered to. It is true that Trovatini, like Caius Furius Creſinus in ancient times, is ſurveyed by many with an eye of ill-natured envy, when they compare the wretched appearance of their grounds with the copious produce of his. But even while I was there, ſeveral of his neighbours had begun to imitate his example. It is much to be regretted that Don Giuſeppe Cippola of Palermo, the late biſhop of Lipari and the adjacent iſlands, did not live ſome years longer. That worthy prelate ſeemed to have been born for the improvement of the ſoil of thoſe countries, which before were wild and little productive. The number of olive-trees which he cauſed to be planted is incredible. I found above three thouſand in Panaria alone. He alſo introduced mulberry-trees there, which have thriven extremely well. I ſaw one in a court-yard, planted eight years ago, which in ſize and ſtrength did not in the leaſt yield to ours of the ſame age, though the latter have the advantage of a more ſuitable ſoil. He has likewiſe enriched the iſland with another ſpecies of the Indian fig, brought from Palermo, the fruit of which is red and extremely delicious. I ſincerely wiſh his ſucceſſor, who is unknown to me, may follow his excellent example.

Since I have again mentioned the Indian fig, I cannot avoid noticing an idea which has occurred to me, and which, ſhould it ever be carried into effect, muſt be productive of great advantage both to Sicily and the Eolian iſles. The cochineal inſect (*Coccus cæti, Linn.*) is bred and collected in Mexico, and other Spaniſh provinces of South America, and the commerce carried on in it is eſtimated at many millions of dollars annually. Might not the advantages derived from this precious drug be ſhared with Mexico by the Lipari iſlands and Sicily, which may be conſidered as the moſt ſouthern part of Italy, from which it has been ſeparated by the irruption of the ſea that produced the ſtrait of Meſſina? To effect this, two things indeed are neceſſary; the plant on which the inſect lives and propagates, and the inſect itſelf. The plant is that uſually

called the Indian fig, and which is found in ſuch abundance in the Eolian iſles and Sicily, where I have ſeen the foot of Etna covered with it. Travellers relate that the opuntias of Mexico, where they are cultivated with the greateſt care, grow to the height of eight feet, and that the leaves of ſome of them are nearly a foot in length. We have ſaid that thoſe of Lipari, and the ſame is true of the reſt of the Eolian iſles and of Sicily, riſe to a greater height, and have leaves more than a foot long. If therefore theſe plants thrive as well in Sicily and the Eolian iſles as in America, and perhaps better than they do there, why ſhould not the cochineal inſects, which feed on them, thrive equally in thoſe countries? Will not the ſilk-worm, though originally from India, live and multiply in every country where it can be ſupplied with the leaves of the mulberry-tree? The only difficulty, in my opinion, would be the conveyance of this uſeful inſect to ſo great diſtance, principally becauſe it could not be removed in the egg, ſince it is viviparous, and not oviparous. It ſhould be obſerved, however, that as the Americans perpetuate the cochineal by means of the leaves of the opuntia, it no doubt would continue to live on the leaves of that plant; which might be brought, growing in large veſſels filled with earth, from Mexico to Sicily. The important advantages to be derived from the ſucceſs of the experiment, at leaſt would ſufficiently juſtify the labour and expence of the attempt. I am not ignorant of the jealouſy and reſerve with which the poſſeſſors of this inſect, which is ſo valuable to them, guard it from foreigners to prevent their ſtealing it. Such a theft has, however, been practiſed on them to the advantage of ſome of the French provinces. I know likewiſe that the hint I have here given, ſhould it ever be carried into effect, would not be agreeable to the political views of Spain; but an Italian and a philoſopher may ſurely be permitted to propoſe it.

I ſhall now diſmiſs the vegetables, and proceed to ſay a word of the fiſhery of Lipari, than which nothing can be more wretched. Not that the ſea does not contain fiſh; but becauſe there are but few there who follow fiſhing as an occupation, and even of theſe the greater number are not provided with the neceſſary implements. They only uſe the line and hook, and the *ſciabica*, a kind of net, which they throw to a conſiderable diſtance into the ſea, and then drag on ſhore. This mode of fiſhing is only uſed in the harbour, and not very frequently, at leaſt in the ſummer, though I have been told that in winter it is more common, as they are then without other employment. I have often been preſent at their throwing the net, leſs from curioſity than to procure fiſh for my ſmall table: but thoſe days proved unpropitious to the fiſhermen, and not leſs unlucky to myſelf; ſince after three or four throws they either caught no fiſh, or thoſe ſo few and ſmall, that had I nothing elſe to eat I might have died with hunger.

In June and July they likewiſe fiſh for coral, both round the ſhores of Lipari and at Vulcano. When I was there I procured a rare ſpecimen, conſiſting of a branch of coral which had grown on a volcanic enamel under the caſtle of Lipari. Fifteen barks, I was told, are uſually engaged in the coral fiſhery; but either becauſe they are ignorant of the proper methods of detaching this valuable animal plant from the rocks and caverns of the ſea, or becauſe they are not ſufficiently expert in the uſe of them, this fiſhery is very unproductive. In the two months above mentioned, every bark carrying eight men fiſhed up ten or fifteen *rotoli* of coral; and the rotolo contains two pounds and a half, and the pound twelve ounces.

Formerly coral was likewiſe fiſhed at the *Secca di Santa Caterina*, a place diſtant ten miles from the harbour of Lipari; but ſome barks having been wrecked there, the biſhop of that time, Father de Franciſci, a Dominican, fulminated his excommunication againſt any bark which in future ſhould have the temerity to attempt to fiſh in that place.

In

In my various maritime excurſions round the Eolian iſles, I never met with any of thoſe ſmaller cetaceous fiſh which are frequently found in other parts of the Mediterranean. But one day when the ſea was calm, while I was ſailing between Panaria and Vulcano, a large cetaceous fiſh of the genus of the phyſeter, and which, from a long fin on the back, I judged to be the *Turſio* of Linnæus, ſuddenly roſe to the top of the water. It approached within about ſeventy feet of my boat, and I had ſufficient opportunity to obſerve it with ſome attention. It is well known to mariners as well as naturaliſts, that dolphins, phyſeters, and whales, properly ſo called, have need of reſpiration from time to time, and therefore frequently riſe to the ſurface of the water with the upper part of their bodies, and throw up, from one or more apertures they have in the head, one or two ejections of water accompanied by the air they have taken in, and inhale freſh air. The cetaceous fiſh of which I now ſpeak did the ſame; and when he came to the ſurface of the water, and drew along the half of his body above it, he was ſo near that I could eſtimate his dimenſions with the eye. He was at leaſt twenty-eight feet long, and the breadth of his body, where largeſt, not leſs than eight feet. The caudal fin was eight feet in length, and the dorſal two. At every expiration a hiſſing ſound was heard of air and water, which he ejected to the height of eight or nine feet. A little before he made this ejection, he raiſed nearly the half of his huge body above the water, but after five or ſix minutes again ſunk and diſappeared. I wiſhed to obſerve the interval of time between one ejection and another, as the animal continued this alternation for a full quarter of an hour. I perceived they were repeated after every ſixteen or ſeventeen ſeconds, and I flattered myſelf that I had aſcertained with ſufficient accuracy the ſpace of time that one of this ſpecies of fiſh can remain under water without being obliged to riſe to the ſurface and inhale air; but I ſoon found this calculation erroneous. After my curioſity had been gratified with this ſcene about a quarter of an hour, the animal raiſed his tail vertically about three feet above the water, and plunging directly down diſappeared; nor could I again diſcover him, though both I and the four mariners who were with me watched with the utmoſt attention during a quarter of an hour: and certainly had he in that time raiſed himſelf to take in air, we muſt have ſeen him, from his great bulk and the calmneſs of the ſea. I then perceived that this animal, though in his organization in a great meaſure reſembling the claſs of mammalia, and therefore, like them, under the neceſſity of reſpiring, could yet remain a much longer time under water than they can.

But if aquatic animals are of little advantage to the inhabitants of Lipari, their land animals are nearly of as little. Both large and ſmall cattle are there extremely ſcarce; and the few oxen and cows which are ſlaughtered there are brought from Sicily, and are very lean. This is entirely to be aſcribed to the poverty of the paſturage. The Lipareſe cultivate themſelves the ſmall portions of land they poſſeſs.

With reſpect to wild quadrupeds, the country produces only rabbits, which make their burrows in the mountainous parts, where the volcanic matters, principally of the tufaceous kind, permit them to dig with their feet. They are hunted with the ferret (*Muſtello Furo, Linn.*), and the chace is very amuſing. Though this animal be originally from Africa, it will live and propagate in the ſouthern countries of Italy. It is about the ſize of the common cat, and in its make ſomething between the weaſel and the pole-cat. I have ſeen them extremely tame at Lipari, where they breed as faſt in the houſes as when wild. The ſportſman who goes to catch the rabbits takes with him the ferret in a cage, and a dog. The latter, when he ſees the rabbit, follows him to the hole in which he takes refuge; or, if he is under ground, diſcovers him by the ſcent,

ſcent, and ſtops at the mouth of the burrow. The ſportſman then puts the *capeſtro*, a kind of muzzle made of packthread, on the ferret, that he may not bite the rabbit; as otherwiſe he would kill it in the hole, and after having ſucked the blood, leave it there. Being unable to ſeize it, he only ſcratches it with his claws, and terrifies it till it endeavours to make its eſcape out of the burrow, and is taken in a net placed for the purpoſe. The ferret follows it out, and is again put into the cage.

Theſe rabbits are ſmaller than the tame ones, and, like others that are wild, are of a grey colour. Not that they are originally ſuch; ſince it is within memory that they were firſt brought there by one of the natives, where they have, as is uſual with them, multiplied prodigiouſly. But nature, put under reſtraint by man, never fails to reſtore to animals which regain their liberty, the ſize and exterior habit of body which they had in their original ſtate.

The birds ſtationary here are but few. They are the partridge (*Tetrao Perdix, Lin.*), the greenfinch (*Loxia Chloris, Lin.*); the ſparrow (*Fringilla Domeſtica*), the goldfinch (*Fringilla carduelis*), the horn-owl (*Strix Scops*), and the raven (*Corvus Corax*). The latter is uſually found about the cultivated fields near the ſtoves, and on the ſteepeſt rocks, though ſometimes in places ſufficiently acceſſible for the young ravens to be taken.

Of thoſe kinds of water-fowl which migrate from one ſea to another, according as they find food in greater or leſs plenty, and paſs indifferently from the ſalt water of the ſea to the freſh of rivers, lakes, and ponds, ſuch as the different kinds of ſea-gulls (*Lari Linn.*), and the cormorant (*Pelicanus Carbo*), I did not ſee one here. Indeed it is very rarely that any kind of water-fowl is ſeen in the Eolian iſles.

It is not the ſame with the birds of paſſage. In April the turtle-dove (*Columba Turtur*) and the quail (*Tetrao Coturnix*) arrive here, and ſtay a few days. They come in the ſame manner in September. Several kinds of ſwallows are common here (*Hirundo ruſtica, urbica, apus, melba*). The two latter make their neſts in the fiſſures of the rocks, and in the higheſt walls of the city of Lipari. When I left that city, which was on the 15th of October, ſome ſwallows of the firſt and laſt ſpecies were flying over it. I ſhall likewiſe obſerve, that on the night of the 13th of the ſame month there was a dreadful tempeſt with lightning, rain, and hail; and the next day, early in the morning, a ſtrong ſouth-weſt wind blowing, I ſaw in the air, over the caſtle of Lipari, at leaſt a hundred common houſe-ſwallows, though they ſoon after diſappeared. Reaumur's thermometer that morning ſtood at 15⅝ degrees above zero (67½ of Fahrenheit).

In ſome converſations relative to ſwallows, which I had with Doctor Trovatini and ſeveral other perſons at Lipari, they related to me a fact which I had before heard at Stromboli, and ſhall again mention when I come to treat of that iſland. It is that in winter, and when a ſciroccal or warm ſoutherly breeze blows, ſwallows of one or other of the four ſpecies above mentioned are frequently ſeen to ſkim the ground in the ſtreets of the city, and are then eaſily knocked down with long ſticks by children, as they are extremely wet. The two latter kinds are even taken with hooks and lines faſtened to the extremity of a long reed. A ſmall feather is faſtened over the hook, and the boy who holds the reed conceals himſelf behind the corner of a ſtreet, and waves the feather in the air. The ſwallow, accuſtomed to catch inſects as it flies, takes the feather and is caught by the hook.

From theſe obſervations we cannot but conclude, that theſe ſwallows do not paſs into Africa at the approach of winter, as many have believed, but that they more probably remain in the iſland, and iſſue from their retreats in the warm days of winter in queſt of food.

I saw likewise at Lipari, while making the circuit of the island by sea, a fifth species of swallow, the swallow of the bank (*Hirundo riparia, Linn.*). This bird is so denominated from building its nest in the banks of rivers, and sometimes the shores of the sea. I observed several of these swallows flying about the rocks of tufa, which descend almost perpendicularly into the sea; and having stopped there some time with my boat, I saw more than one of them go into and come out of the holes they had made in the tufa. I was told by the people of Lipari that this kind of swallow appears in March, and disappears in October.

In the introduction to this work I have mentioned that it was my intention to add to the observations I should make on the swallows of Lipari and Sicily, others which I had made on the same species of birds in Lombardy; which addition would not have been so long, but it might have been here conveniently subjoined. But having afterwards more fully considered the subject, and made new and various experiments to elucidate the great controversy, whether swallows remain torpid during the cold weather, of which I have slightly treated in my other works (see my Annotations on the Contemplation of Nature, and Tracts on Animal and Vegetable Physics *); and having afterwards extended those experiments to other animals which are in like manner torpid in winter, and especially those whose blood is cold, as the common hedge-hog (*Erinaceus Europæus, Linn.*), the marmot (*Mus Marmota*), the dormouse (*Mus avellanarius*), the bat (*Vespertilio*), I found my matter so increase on my hands, that I determined to publish my observations on this subject separately, after having finished the work in which I am at present occupied.

We will now proceed to notice some other particulars relative to Lipari and its inhabitants. Foreign commerce has begun to be introduced into the island by the mariners, most of whom traffic in what they call gallantry-wares. They every year buy, at the fair of Sinigaglio, linen, muslins, veils, and other commodities of that kind, to the value of from thirteen to fourteen thousand Sicilian *oncie* †, and sell them at Messina, Catania, Palermo, and other parts of Sicily. This trade is very advantageous to the country, and many have acquired considerable wealth by it. It has however considerably diminished the fishery, and raised the price of fish.

Strabo, Diodorus, and Dioscorides, write that the sulphate of alumine (alum) was procured in great abundance at Lipari. The truth, however, is, that none whatever of that salt is now extracted in the island. I have passed over almost every foot of ground in it, and only found some traces or efflorescences of it, as I have mentioned in the proper places, which, with respect to profit, would not pay the labour of collecting. We must therefore conclude that the vein of this mineral has either been exhausted or lost; or that the Liparese procured it, not from their own island, but the neighbouring one of Vulcano, which is still rich in this sulphate. The latter is perhaps the most probable explanation of the authorities above alleged.

The political administration of Lipari is composed of a criminal judge, a fiscal, a governor who has the chief authority both in military and civil affairs, and who is commonly an old invalid, and a civil judge.

The bishop, seventeen canons of the first order, and fourteen of the second, and from a hundred and twenty to a hundred and thirty priests, form the ecclesiastical establishment.

* Annotazioni alla Contemplazione della Natura.—Opuscoli di Fisica Animale e Vegitabile.

† Count Stolberg, in his Travels, lately published, says the *oncia* of Sicily is worth three six-dollars and nine good groschen; or about eleven shillings and nine-pence. The German translator of this work estimates the *oncia*, I know not on what authority, at six dollars.—*T.*

The natives of this iſland are not wanting in natural abilities, but in the cultivation of them. The Lipareſe are in general of a prompt and lively wit, ready to learn, of acute penetration, and extremely deſirous of obtaining knowledge. Hence, when any learned ſtranger viſits their iſland, there is no end to their queſtions and enquiries. They willingly become his guides to their ſtoves and baths; and there is not one among them who is ignorant that his country was once produced by fire. The ſeat of the court of King Æolus is conteſted in the Eolian iſles, as the birth-place of Homer is in Greece. He is claimed by each of the iſlands; but the people of Lipari are fully perſuaded that the royal reſidence of this petty ſovereign was in their iſland; and thoſe among them who have ſome little tincture of literature, can cite the authority of Homer and other writers in proof of their aſſertion.

A beggar is ſcarcely ever to be found in Lipari; for even the pooreſt perſons have ſome ſmall piece of ground which they cultivate, and by the produce of which they live.

The natives are uſually robuſt, ſtrong, rather of a large ſize, and comely. When young they have fine complexions; but fatigue will diminiſh every kind of beauty, even that of the fair ſex. This change is greatly accelerated by the heat of the ſun; the effects of which are conſpicuous in their tanned ſkins and ſwarthy countenances.

If it was a diſgrace in Greece to be unable to ſwim, it is not leſs ſhameful in Lipari and the other Eolian iſles, to be ignorant either of that art, or that of managing the oar, or ſteering and handing the ſails of a veſſel. The prieſts are very expert in every exerciſe of this kind. The greater part of them have, like the ſailors, their arms or hands marked with black indelible ſtains repreſenting either the crucifix or ſome ſaint. I knew, at Lipari, a man of conſiderable property, and who was honoured with the title of baron, who was marked in this manner, having formerly been a mariner.

The city of Lipari is not of an extenſive circuit, and conſiſts rather of narrow alleys than ſtreets. The caſtle is ſurrounded with a wall on which are mounted a few cannon, and is defended by a ſmall garriſon. The houſes are very indifferent buildings, but three edifices are diſtinguiſhable from the reſt. Theſe are the palace of the biſhop, the houſe of the governor, and the cathedral church. The latter contains very valuable ſacred utenſils, and a great quantity of plate and ſilver images, among which is the ſtatue of St. Bartholomew, their patron ſaint. Theſe have been collected entirely at the expence of the people, and the value of this treaſure is ſaid by thoſe who underſtand it to amount to ninety thouſand Neapolitan *ſcudi* *.

II. STROMBOLI.—Though both Stromboli and Lipari lie nearly under the ſame degree of latitude, or 38° N., the former is much hotter in ſummer than the latter; eſpecially near the ſea, on account of the ſtrong reflection of the rays of the ſun from the large tracts of ſand. It does not appear probable, however, that this heat is to be attributed to its volcano, ſince, excepting a few places near its mouth, if we dig into the earth, we find the ground leſs warm at ſome depth than on the ſurface.

The winter here is always mild; it never freezes; and ſnow, which is ſeldom ſeen, if it fall one day, melts the next. Its greateſt depth is about two inches; and it is related as a prodigy, that, ſome years ſince, ſnow fell on the firſt of November, to the depth of a palm (or nearly a foot). On the ſummit of the mountain indeed, ſnow falls more frequently, and ſometimes will remain for a fortnight; which proves the height of the mountain to be very conſiderable.

* The Neapolitan *ſcudo* is worth about 4s. 3d.

The ſea round this iſland is frequently agitated by ſtorms, and the fact I am proceeding to mention will ſhew to how great a height its raging billows beat.

About a mile from the land, on the north-eaſt ſide of the iſland, riſes a ſpacious naked rock, called the Rock of Stromboli. It conſiſts of one entire piece, has rugged points at the top; and its baſe, where it is waſhed by the water, is about a quarter of a mile in circuit. Its greateſt height is three hundred feet. This rock is a huge maſs of lava, which, probably, once was joined to the iſland, and has ſince been ſeparated from it by the violence of the ſea. The natives of Stromboli have obſerved that, in very great ſtorms the billows riſe to one half the height of this rock; and ſome of them have aſſured me that they have twice in their time ſeen the waves riſe above the top of the rock. As therefore, in general, the agitations of the ſea are only a conſequence of thoſe of the air, we may form ſome conception of the fury of the winds, which are here more violent than in any of the other Lipari iſlands. Theſe hurricanes, which frequently ariſe on a ſudden, lay waſte the plantations, and wreck the barks expoſed to their fury. To avoid as much as poſſible the effects of their violence, the houſes here are built very low.

The ſhore of Stromboli has neither port nor harbour, and veſſels can only ſeek ſome little refuge, in caſe of heavy ſtorms, on the back of the iſland. Large ſhips, except compelled by neceſſity, never anchor there, from fear of running on ſand-banks. The veſſels employed by the natives for their own occupations are ſeluccas, which, being extremely light, are eaſily drawn upon land, and as eaſily launched again into the ſea.

The fiſh here are very plentiful and large, eſpecially the ſea-eels and murenas; and, during my ſhort ſtay in this iſland, I ſaw a greater quantity taken than during the whole time of my continuance in all the other Eolian iſles. They are likewiſe of an excellent taſte. This abundance I am inclined to attribute to the volcano, which has continued inceſſantly burning from time immemorial; and which extending to an immenſe depth muſt neceſſarily communicate a part of its heat to the ſubmarine baſe of the mountain, and to the waters that ſurround it, in the gentle warmth of which the fiſh find a more agreeable place of reſort, and perhaps propagate in greater numbers than elſewhere. The fiſhery, however, produces here no branch of commerce, and only ſerves to ſupply the iſland, principally the foreigners who viſit it; as the natives uſually live on ſalt meat, and ſtrangers can rarely find any food ſo agreeable to their palate as fiſh.

The vegetables that grow in Lipari are found here likewiſe, and nearly in the ſame proportion. Malmſey is the greateſt article of traffic of the people of Stromboli; they convey it in barrels to Lipari, where they find a ready ſale for it. The vines producing the *paſſola* and *paſſolina* grape, and that from which the malmſey is made, grow on the ſea-ſhore; and thoſe for the common wine, on the ſides of the mountain. Some of them are faſtened to trees; but they are all planted in vineyards; and, where theſe are ſituated high, they are ſurrounded with thick reeds, which at once ſupport and defend them from the wind. The vines form a chain to the north-eaſt, and are all planted in volcanic ſand.

The habitations of the iſlanders are built in the ſame part, and under the ſame aſpect. They are an irregular aſſemblage of cottages and fiſhermen's huts. The population of the iſland amounts to about a thouſand perſons, and has been for ſome time increaſing; in conſequence of which exertions have been made to enlarge the cultivable ground by clearing away the woods. They have no fear of their volcano. Neither they nor their fathers having ever ſeen torrents of lava burſt forth from its furnace and ſpread deſolation around, as has happened from time to time at Etna and Veſuvius; they ſurvey its more conſtant fires with an eye of indifference and ſecurity.

Mr. Broydone, in his tour through Sicily and Malta, tells us that, notwithſtanding his great deſire to viſit this volcano, the only one of its kind, he did not venture to land at Stromboli for fear he ſhould be ill uſed by the inhabitants, whom he believed to be little other than ſavages. On the contrary, M. Dolomieu was very civilly received by them. The treatment I received from them, and the converſations I had with them, likewiſe convince me that the Engliſh traveller muſt have been very wrongly informed. The character of theſe iſlanders is nearly the ſame with that of the inhabitants of other villages at a diſtance from, and having no communication with, populous cities; I mean they are ſimple, honeſt, and, having but few ideas are contented with the little they poſſeſs. Their longeſt journey is uſually to the city, which, though it is ſmall, appears to them wonderfully magnificent; and when they firſt enter it, they are affected like Dante's ruſtic:

" Non altrimenti ſtupido ſi turba
Lo Montanaro, e rimirando ammira,
Quando rozzo, e ſelvetico s' inurba "

" Thus the rude clown who, for the firſt time, views
Of ſome throng'd capital the wealth and pride,
Gazes with open mouth, in wonder wild."

A little above the baſe of the mountain, on the eaſt ſide, is a ſmall ſpring, the ſcanty ſupply of freſh water from which would be inadequate to the wants of the inhabitants, were it not for a more copious and inexhauſtible ſtream at a little diſtance from it, which furniſhes them with water to diſpel their thirſt, and without which they could not exiſt, when, in ſummer-time, the rain-water they have preſerved in their ciſterns is entirely exhauſted. M. Dolomieu, who viſited this fountain, ſuppoſes it to owe its origin to evaporation cauſed in the mountain by volcanic heat and ſucceeded by condenſation at a certain height, it not appearing to him poſſible that this ſpring ſhould have its reſervoir in the higher parts of the mountain: as theſe are compoſed of ſand and porous ſtones, and therefore are unfit to retain water. This hypotheſis is certainly both ingenious and probable; but may not another be equally probable which ſuppoſes this ſpring to be ſupplied from the ſummit of the iſland, where the earth being ſandy and full of pores, the rains eaſily penetrate it and collecting in the cavities below form a maſs of waters at all times ſufficient to ſupply the ſpring? According to this hypotheſis, the reſervoir will not be on the ſurface, but in the internal part of the mountain. The objection that the heat of the volcano would reduce ſuch a body of water to vapour will be found to be of little weight, ſince the ſpring is more than a mile diſtant from the crater; and it is very probable that the activity of the fire does not extend ſo far; indeed it ſeems almoſt certain; for we do not perceive for a conſiderable ſpace around it, notwithſtanding the poroſity of the earth, the ſlighteſt trace or indication of thoſe fumes which are the moſt certain indication of ſubterranean fires. In fine, the origin of this ſpring, which never fails, can only be explained in the ſame manner as that of other fountains of freſh water in other iſlands.

We find here no ſtationary birds whatever. Attemp's have been ſeveral times made, but in vain, to naturalize partridges here. The experiment has ſucceeded better with rabbits. Thoſe formerly brought have multiplied and continue to multiply; living in their natural wild ſtate, in the woody part of the iſland. The muſket and the ferret are their only enemies.

The birds of paſſage are the ſame as at Lipari. When I was at Stromboli in the beginning of October, I ſaw three ſwallows *(Hirundo ruſtica Linn.)* flying over the iſland; and ſeveral of the inhabitants aſſured me that they frequently re-appear in winter, when a warm wind has rendered the air warmer than ordinary.

III. Vul-

III. VULCANO.—This island is not inhabited, nor is it remembered that it ever was. It is more than probable that its numerous eruptions have occasioned it to be thus deserted. It is not, however, more than a century since it was of considerable utility to people of Lipari from the quantity of sulphur and sulphate of alumine (alum) they procured from it; bringing away annually, if we admit the estimate of Pietro Campis *, to the amount of four thousand *cantara* † of the former, and six hundred of the latter. We have already mentioned the sulphur of this island, and the difficulties with which it is procured, in Chap. XIII. Sulphate of alumine still abounds here; but the extraction of it is attended with the same difficulties as that of the former mineral. These are occasioned by the numerous sulphureous fumes, and the heat, which exhale from the subterranean caverns, and which are found the strongest in the places where that salt most abounds. I am, therefore, of opinion that, at the time these substances were dug here, the state of the volcano must have been different.

The people of Lipari might, however, if I am not mistaken, derive another more stable advantage of which they have hitherto been ignorant, or have neglected, from this deserted island. This would be obtained from the productive plantations that might be made in the southern parts of the island, to which, for a great length of time, the fire has never extended its injuries. This part of the island consists of a softened and half-crumbled lava, similar to that of Stromboli, where vines thrive so well; nor can I discover why they should not succeed equally well in Vulcano. The same idea has occurred to Trovatini; and the bishop of Lipari, whom I have before mentioned with the respect which is due, told me that he had thoughts of attempting the cultivation of Vulcano by sowing corn, and planting vines and fruit-trees.

The bishop likewise communicated to me another idea which I did not expect. He said he had conceived the design of building a seminary in that island, for the education of twelve youths, sons of the peasants, who should be brought up to the service of the cathedral, and of the parish churches of the other Eolian isles. He very justly thought that these youths, having been born and educated in the islands, would be better fitted for, and more attentive to, the discharge of such duties. Whether since the death of this prelate any attempts have been made to carry his useful plans into execution, I cannot say. The little disposition which those who succeed to any office usually shew to complete the projects of their predecessors, inclines me to think it very doubtful whether Vulcano will not still remain in its former deserted and barren state.

IV. SALINE.—Didyme, or, as it is at present called, le Saline (or the salt-pits), is very different from Vulcano. This island in many parts has its skirts covered with cottages, and abounds in vines, the grapes of which yield wines not inferior to those of Lipari.

At a little distance from the sea, near Santa Maria, a continual spring of fresh water rises. The great heat of many such springs is usually an unequivocal sign, if not of the existence of a volcano, at least of subterranean effervescences. This, however, when I examined it by the thermometer, appeared to be two and a half degrees cooler than the temperature of the atmosphere ‡. It formerly issued nearly on a level with the water

* Disegno Istorico della Città di Lipari.

† The Neapolitan *Cantara* or quintal is of two kinds; the *grosso*, or the great, and the *piccolo*, or the little. The great cantara contains 100 *rotoli*, and 3 rotoli make 8 pounds 4 ounces Neapolitan weight, the pound containing 12 ounces. The little cantara contains only 100 such pounds. T.

‡ I shall here observe that excepting some places in Stromboli, Vulcano, Lipari, and a spring in Felicuda, I never could perceive, though I used the thermometer, that the Eolian isles, other circumstances being the same, are warmer than Messina, the coasts of Calabria, and other neighbouring countries which are not volcanic.

of

of the ſea, with which it frequently mixed, and thus became almoſt uſeleſs to the inhabitants; but this inconvenience has within theſe few years been remedied, by a vertical ſection being made in the ſhore; in conſequence of which it now iſſues fifteen feet above the level of the ſea. It is very abundant, and throws up five ſtreams of water, each about an inch in diameter, which is very extraordinary in a volcanic iſland; at leaſt in any of thoſe of Lipari.

This plentiful ſpring, there can be no doubt, is ſupplied by rain-water, as, in the preſent time, the opinion that fountains and rivers are immediately derived from the ſea, is entirely exploded. The rains, however, by which it is nouriſhed are not to be ſought in remote countries; they can only be thoſe which fall on the iſland. It muſt at the ſame time be confeſſed, as I was aſſured by the natives, that there has ſometimes been no rain there for nine months, and yet this ſpring, in all that time, did not appear to ſuffer the ſmalleſt diminution. In what manner then ſhall we account for this, if we aſcribe its origin to rain-water? I can ſee no abſurdity in the ſuppoſition, on the contrary, it appears to me extremely probable, that, in the internal parts of an iſland which, like this, is the work of fire, there may be immenſe caverns that may be filled with water by the rains, and that in ſome of theſe which are placed above the ſpring, the water may always continue at nearly the ſame height, and a long drought conſequently produce no alteration in the ſpring. By a ſimilar hypotheſis, which does not appear to me at all forced or unnatural, we have explained above the origin of the ſpring which continually flows in Stromboli.

I have already mentioned that this iſland received the name of Saline (ſalt-pits) from the muriate of ſoda (ſea-ſalt) which is obtained in it. A brief account of this product, and the place where it is procured, may not be unacceptable to my readers. Cloſe to the ſhore, an the ſouth-eaſt ſide of the iſland, there is a lake of about a mile in circuit, ſeparated from the ſea only by a bank of lava, not formed by art, but by the ſea itſelf, which has raiſed it by the beating of its waves. It appears indubitable, that this lake was once a ſmall bay or creek of the ſea, which has been ſhut out by the accumulation of the lava, though its waters are ſtill admitted by ſecret channels; ſince, notwithſtanding the continual evaporation, the lake remains full. In conſequence of this continual evaporation, however, the water in it becomes ſalter than that of the ſea, and in conſequence forms a cruſt of muriate of ſoda (ſea-ſalt) on its banks. The lake has every appearance of being very ancient, but had been long neglected; until in the year 1750 an attempt was made to render it more advantageous, under the direction of a native of Trapani, who was acquainted with the nature of ſalt-works. He firſt drained the lake, and then dividing it into thirty ſquare pits, each ſeparated by high banks, let in the ſea-water to a certain height, which gradually evaporating by the heat of the ſun, which in ſummer is there very great, left on the ſides of the banks, and at the bottom a ſtratum of ſalt. This method has been continued ſince, and the ſalt collected twice or thrice every year, according as the heat of the ſeaſon more or leſs favours the evaporation. The quantity procured is ſufficient to ſupply all the Lipari iſlands.

The inhabitants from whom I received this account related to me at the ſame time a fact that excited my ſurpriſe. The ſea in a violent ſtorm making its way into the lake, carried with it a number of fiſh of the *cephalus* or chub ſpecies, which continued to live in the lake as in their native element. They multiplied very faſt, notwithſtanding the water by a new evaporation was rendered extremely ſalt; and when they were afterwards taken out, they were found to be very fat and well-flavoured. This the more ſurpriſed me, becauſe ſome years before, in another part of the Mediterranean, that is where the river Magra falls into the ſea, near Carrara, I had obſerved this ſpecies of

fiſh

fiſh delight in water almoſt freſh; leaving the open ſea for the mouth of the river, and appearing to ſeek thoſe places in which the ſea-water, mixed with that of the river, and leſs ſaltneſs; to which places the fiſhermen reſorted to catch them. Other ſpecies of ſea-fiſh without number of a very different nature, not being able to live in water which is ſalter than that of the ſea. Thus near Chiozza, in the Venetian ſtate, I have found ſome which preſently died when put in water ſaturated with muriate of ſoda (ſea-ſalt), nearly the ſame with that of the lake above mentioned, and prepared for the ſame uſe. Such a difference of temperament in animals formed to inhabit the ſea muſt doubtleſs be the reſult of a difference of organization, though we are ignorant in what it conſiſts, leſs perhaps from the difficulty of diſcovering it, than from our not having directed our enquiries towards this part of the animal œconomy.

V. VI. FELICUDA and ALICUDA.—Theſe two iſlands are the laſt of thoſe of Lipari towards the weſt. In Felicuda the houſes are ſcattered over the whole iſland, which contains about ſix hundred and fifty inhabitants; but in Alicuda, the population of which is not ſo great, they are built only at the ſouth and ſouth-eaſt end of the iſland; it being in fact impoſſible to build them any where elſe, the reſt of the iſland conſiſting only of cliffs, and crags, ſteep precipices and inacceſſible rocks. It is obſervable that theſe houſes, or rather cottages, are not erected at the ſhore, or baſe, of theſe mountainous iſlands, but about half way up on the ſide which has a very ſteep declivity, where likewiſe ſtand the houſes of the two pariſh prieſts. I at firſt was unable to conceive why a ſituation ſo difficult to reach, from the ſteepneſs of the aſcent, had been preferred for their houſes to the lower parts of their iſlands, which is much leſs ſteep and nearly level with the ſea. But I was told by both the peaſants and the prieſts, that this ſituation had been choſen by their anceſtors becauſe that formerly Felicuda and Alicuda, being the moſt remote from the principal iſland, were greatly expoſed to the attacks of the Turks, eſpecially the Tuniſion corſairs, who frequently landed there in the night, ſurpriſed the iſlanders while aſleep in their houſes near the ſhore, plundered them of their goods, and carried them away into ſlavery, as they have ſometimes made ſimilar predatory deſcents, in the preſent times, on the coaſt near Genoa. The people of Alicuda and Felicuda on this account built their houſes where the danger was leſs. The Eolian iſlands are indeed ſtill liable to ſuch viſits from their African neighbours. It is true the latter do not always ſucceed in their deſign, but ſometimes pay dearly for their temerity; yet it is neceſſary for the iſlanders to take every precaution, on which account there is a centinel ſtationed on the Monte Della Guardia at Lipari, who is on the watch night and day. This, however, does not deter the barbarians from frequently ſtretching over to thoſe iſlands; where they lie in wait under a rock, a cape, or a point of land, till they ſee ſome ſmall veſſels when they dart like vultures on their prey incapable of reſiſting their force, and ſetting their ſails, if the wind be favourable, or labouring with their oars, are ſoon out of ſight of the iſlands and in the open ſea; where it little avails the unhappy wretches they have made ſlaves to lament their fate or ſue for mercy. I will confeſs that, frequently while making the circuit of theſe iſlands, I was not without my fears that I might in this manner be carried to make obſervations of a very different kind on the neighbouring coaſts of Africa.

Beſides Indian figs and ſome olive-trees, theſe two iſlands contain many vines, from the grape of which a good wine is made, though it is not malmſey, nor the grape the paſſola or paſſolina.

The corn grown here is barley and wheat; of which, together with the grapes, there is produced in Alicuda to the value of about three thouſand Neapolitan crowns; and about one third more in Felicuda. This quantity of corn is ſufficient for the ſupport

of

of Alicuda; but the produce of Felicuda is not ſufficient for it; the Lipareſe, who are owners of a number of the ſmall farms there, carrying away a conſiderable quantity.

The induſtry and patience of the people of Alicuda is incredible: they do not loſe an inch of the ground they cultivate. There is ſcarcely a tract of cultivable land of a few perches in circuit, which is not interrupted with points of rocks, maſſes of lava, cleſts, and crags: yet all theſe tracts they render productive: they turn and break them with pointed ſpades, and render every foot of them fruitful; on which account the Lipareſe ſay, jeſtingly, that the people of Alicuda till their lands with the point of a knife. It is certain, at the ſame time, that in all the Eolian iſles there is no better bread than that made in Alicuda. I have taſted it, and can affirm that it is moſt excellent.

Few fiſh are taken in theſe iſlands becauſe there are but few fiſhermen, and theſe have no nets, but only uſe the hook and line. The whole number of boats, likewiſe, either uſed for fiſhing, or to paſs from one iſland to the other, is only five or ſix in Felicuda, and three or four in Alicuda. When they no longer want to uſe them, they draw them up out of the water on the dry beach, where the ſea cannot reach them, till they again have occaſion for them. One or two of theſe boats uſually belong to the pariſh-prieſt, who not only makes uſe of them in fiſhing, but for other purpoſes; as to go to market to Lipari, or to accommodate a ſtranger, in which caſe he will not refuſe to act as pilot, or, on an emergency, as rower. Neceſſity, the mother of induſtry, impels theſe good prieſts to endeavour to find employment, as they could ſcarcely live, however wretchedly, one half the year, on their eccleſiaſtical revenues, which amount to little more than twelve ſequins annually for each iſland.

At Felicuda, when the huſband or wife died, it was a cuſtom conſidered as a kind of ſacred duty for the neareſt relations to follow the body to the grave with loud and immoderate lamentations, and, as ſoon as the obſequies were finiſhed, to throw themſelves upon the corpſe, embrace it, kiſs it, ſpeak to it with a loud voice, and give commiſſions for the other world. This ridiculous practice, which is not modern, has been aboliſhed by the preſent prieſt.

In neither of theſe iſlands is there a ſingle ſpring of freſh water. The inhabitants are therefore obliged to have recourſe to the rain-water they can preſerve in ciſterns; and, when it happens not to rain for ſeveral months, their diſtreſs is extreme.

The people of Alicuda and Felicuda, in fact, of all the Eolian iſles, boaſt that their iſlands are exempt from every kind of ſerpents; and, indeed, in all my excurſions in them, I never met with one. The reaſon of this evidently is becauſe the food neceſſary for theſe creatures is wanting: they feed principally on inſects and other ſmall animals, of which I found here very few. The ſcarcity of theſe latter is likewiſe to be accounted for on the ſame principle; as it is known that they feed on vegetables chiefly of the herbaceous kind, which in theſe iſlands are extremely rare.

Of other animals of the amphibious kind I only met with the gray and green lizard (*Lacerta agilis Lin.*), and with reſpect to inſects, only ſome graſshoppers, and the lion-ant (*Myrmeleon formicarius Lin.*), which are found in great numbers among the duſt of the pumices and lavas.

The people of theſe iſlands may likewiſe boaſt of an advantage incomparably more important; I mean, that their ſovereign, in conſideration of their poverty, has exempted them from every kind of taxation, only paying tythes to the biſhop, from which however the people of Lipari are exempted.

It is incredible, at the ſame time, how contented theſe iſlanders are amid all their poverty. Ulyſſes, perhaps, cheriſhed not a greater love for his Ithaca, than they bear to their Eolian rocks, which, wretched as they may appear, they would not exchange

for the Fortunate Iſlands. Frequently have I entered their huts, which ſeem like the neſts of birds hung to the cliffs. They are framed of pieces of lava ill joined together, equally deſtitute of ornament within and without, and ſcarcely admit a feeble uncertain light, like ſome gloomy caves. Sometimes I have been preſent at their wretched meals, ſet out in coarſe diſhes, or on the bare ground on which they ſat, and conſiſting of black barley bread and wild fruits, and ſometimes, by way of dainty, ſome ſalt-fiſh, and pure water to quench their thirſt. Attending only to the firſt impreſſion of the ſcene, I thought I beheld the perfect image of wretchedneſs and miſery; but on more mature conſideration, I diſcovered in theſe rude huts, and in the midſt of this hard fare, an enviable happineſs, which, I doubt is not to be found in the palaces of the great, or among the delicious viands of royal tables. A cheerfulneſs and perfect tranquillity ſhone in the countenances of theſe poor people, and evidently poſſeſſed their hearts. Their ruinous cottages, which muſt be viewed with pity and contempt by the rich and great, to them were dear; and the food, which the luxurious would have rejected as inſipid or nauſeous, to their palates had an exquiſite flavour. But the frugal meals of theſe iſlanders are always ſeaſoned with a ſauce which never accompanies the diſhes at the tables of the great, I mean hunger and thirſt, which render every meat delicious and every beverage grateful. The labour of their hands and the ſweat of their brow ſecure an exquiſite reliſh for their ſcanty fare.

As to the content and tranquillity of theſe iſlanders, and the affection they bear their native country, I do not think I ſhould greatly err, were I to aſcribe it to the happy temperature of the climate, and the quality of the air, which, when pure, ſo much contributes to maintain in us the proper harmony between the ſolids and the fluids, or the ſtate of perfect health. A proof of this I experienced in myſelf. Notwithſtanding the continual and great fatigues I underwent in my excurſions among thoſe rocks, and notwithſtanding my advanced age, I felt in myſelf an energy and vigour of body, an agility and livelineſs of mind, and a certain animation of my whole frame, which I had experienced no where elſe, except on the ſummit of mount Etna: In countries infeſted with impure air and thick vapours, I have never been able to apply myſelf to my favourite ſtudies immediately after dinner, but under this ſky, which is ſo rarely overclouded with vapours, I could write on the ſpot, at any time, a part of thoſe obſervations I am now about to preſent to the public. How immenſe the difference between this moſt pure and almoſt celeſtial air, and the fœtid and foggy atmoſphere of ſome of the low plains of Lombardy, ſurrounded by ſtagnant and filthy waters and unhealthy rice-grounds, producing continual clouds and fogs in winter, and obſtinate fevers in ſummer; where the ſpirits are depreſſed, and rendered dull; and where, to complete the catalogue of ills and inconveniences, innumerable hoſts of frogs, in the warm ſeaſon, both by night and day, deafen the ear with their inceſſant croakings!

CHAP.

CHAP. XXV.—STATE IN WHICH THE AUTHOR FOUND MESSINA AFTER THE EARTHQUAKE IN 1783.—ACCOUNT OF THE CALAMITOUS ACCIDENTS WHICH BEFEL THAT UNFORTUNATE CITY.

Great numbers of the people of Scilla drowned by the waves of the sea.—A long range of palaces adjoining to the harbour, almost all destroyed.—Prodigious number of edifices within the city either thrown down, or on the point of falling.—Wooden sheds erected by the people of Messina to lodge in till the houses could be rebuilt.—Injurious effects produced by fear which had seized entirely on the minds of the inhabitants.—Account of the different dreadful shocks which laid waste the city, and circumstances by which they proceeded and accompanied.—Other shocks followed, but successively weaker.—The buildings of which the foundation was granite least damaged.—The mole, which was constructed in ground not sufficiently solid, entirely carried away and buried in the sea.—Enumeration of the more considerable edifices which were reduced to ruins.—Incalculable losses sustained by the destruction of the monuments of the arts, and the property buried under the ruins, or consumed by the fires which broke out after the earthquake in different parts of the city.—Exertions of the King of the Two Sicilies to restore Messina to its former flourishing state.

IN the forenoon of the 14th of October, I left the Eolian isles, and sailed from Lipari, in a felucca, for Messina, which is distant from that island thirty miles, but where I did not arrive till the middle of the next day; partly from having stopped some time to make observations on the granites of Melazzo, and from the want of wind, which obliged the mariners to have recourse to their oars. With these islands I was to dismiss every idea of volcanos either still burning or extinct, as that part of Sicily to which I was approaching exhibited not the least trace of that nature. I do not mean to say that at different times it may not have suffered by their destructive effects, if it be true, as I believe it to be, that partial earthquakes, that is, those which are felt through a not very extensive tract of country, and at a small distance from a volcano, originate either mediately or immediately from that volcano. In fact, what island has suffered more in this manner than Sicily, and that from nourishing within its bosom the Etnean conflagrations? When I travelled in those parts, the dreadful effects of the earthquake of 1783 were the common subject of discourse. On my entering, in the felucca, the Strait of Messina, some of the people who were with me pointed out to me the shore of Scilla where a great number of people were drowned at that calamitous time. A dreadful shock of an earthquake took place, about noon, on the 5th of February of the above year, which terrifying the people of Scilla, they fled in crowds to the shore, when, about eight o'clock the following night, according to the Italian reckoning *, another violent shock succeeded, in which the waves rose so high that they covered the whole shore and out of more than a thousand persons who were there collected, among whom was the prince of Scilla himself, not one escaped to relate and mourn the fate of the rest. The furious waves, rushing into the Strait, penetrated to the harbour of Messina, and nearly sunk the vessels there at anchor.

When I arrived opposite to the city, I began to see the fatal and ruinous effects of this dreadful earthquake. The curvature of the harbour was formerly embellished for the extent of more than a mile, with a continued range of superb palaces, three stories in

* About one in the morning.

height, uſually called the *Palazzata*, inhabited by merchants and other perſons of opulence, which formed a kind of ſuperb amphitheatre. The upper ſtory and a part of the ſecond of theſe buildings were entirely thrown down, the lower greatly torn and damaged, and the whole of this extenſive pile deſerted by its inhabitants.

When I entered the city, every object which met my view tended to awaken melancholy ſentiments and commiſeration. Excepting ſome of the wider and more frequented ſtreets, the reſt were all heaps of ruins, either piled up on each ſide, or ſcattered in the middle, and rendering it impoſſible to paſs them. Many of the houſes were ſtill in the ſame ruinous ſtate in which they had been left by the earthquake; ſome entirely deſtroyed and levelled with the ground, others half thrown down, and others ſtill ſtanding, or rather hanging in the air, merely from the ſupport afforded by the ruins around them. Thoſe which had eſcaped this deſtruction appeared as if preſerved by a miracle, torn and rent as they were. The cathedral was among the number of theſe fortunate edifices. This is a ſpacious building, of Gothic architecture. Its interior has ſuffered little or no damage. It is embelliſhed with a number of columns of granite brought from an ancient Grecian temple, which once ſtood on the Faro (or Strait of Meſſina), and with elegant Moſaic work wrought with the moſt beautiful jaſpers of Sicily.

The deſtruction of ſo great a number of houſes as were thrown down by this dreadful earthquake obliged the people of Meſſina to take refuge in wooden ſheds built for the occaſion, many of which were ſtill ſtanding when I was there. They had begun, however, to rebuild the houſes, but on a different plan from the old ones. They had obſerved that the higheſt had ſuffered moſt, and that, in the violent ſhocks of the earthquake, the beams, by continually and forcibly beating againſt the walls, had completed the ruin of the edifice. They therefore reſolved to build them lower, and to conſtruct the wood-work in ſuch a manner that, in caſe of a ſimilar viſitation, the ſhock ſhould be ſuſtained by the whole of the building, and not by a part only. This precaution, it is evident, muſt be of the greateſt utility, ſhould the city again ſuffer a calamity of this nature.

Though it was now nearly the ſixth year ſince that dreadful diſaſter, conſiderable remains of the dread, conſternation, and, I may ſay, ſtupefaction, which uſually accompany great terrors, were ſtill manifeſt in the minds of the people of Meſſina. They had ſtill preſent in their memory all the circumſtances of that dreadful time; nor could I liſten to the narrative they gave of them without ſhuddering.

That ancient city, which had ſo repeatedly ſuffered, was not deſtroyed by one but ſeveral earthquakes, which laſted in ſucceſſive ſhocks, from the 5th to the 7th of February 1783. The moſt deſtructive was that of the 5th, but an interval of ſome minutes elapſing between the firſt and ſecond ſhock, the inhabitants had time to quit their houſes, and fly to the open plain. Hence the number of thoſe who were killed was not proportionate to the quantity of ruins. They did not exceed eight hundred.

In a memoir relative to the earthquakes in that part of Calabria oppoſite to Meſſina, which happened at the ſame time, it is ſaid that, before the firſt ſhock, the dogs in the city began to howl violently, and were killed by public order. On my enquiring of the people of the country, they aſſured me that the fact was falſe, and that no other phenomenon preceded this calamity but the flight of the ſea-mews and ſome other birds from the ſea to the mountains, as they uſually do on the approach of a tempeſt. A very violent noiſe, reſembling that of a number of carriages rattling over a ſtone-bridge, was the firſt ſymptom, while at the ſame time a thick cloud aroſe from Calabria, which was the centre of the earthquake, the propagation of which was ſucceſſively apparent by the

fall

fall of buildings from the point of the Faro to the city of Meſſina, as if at that point a mine had been fired which extended along the ſhore and continued into the city. The ſhock was moſt violent, and the motion extremely irregular. In no part were any fire or ſparks obſerved. The ground along the ſhore opened in fiſſures parallel to it; and though in ſome places theſe continued more than a month, the dread and conſternation with which every one was ſeized, prevented any attempt to meaſure them.

After the firſt ſhock, which, as we have ſaid, took place about noon, on the 5th of February, the earth continued inceſſantly to tremble, ſometimes with a ſlighter and ſometimes a more violent motion; till at eight the following night another tremendous ſhock, which was fatal to the people of Scilla, completed the deſtruction of the remainder of the fabrics of Meſſina. The earthquakes did not ceaſe till the 7th, when another dreadful ſhock ſpent its rage upon the ruins.

From that time till my arrival at Meſſina, ſhocks have continued to be felt, but gradually diminiſhing in force and number; and in 1789 and 1790, only four or five were obſerved, and thoſe ſo extremely feeble, that, in any other country leſs affected by fear and alarm, they might not have been noticed, or not ſuppoſed to be earthquakes *.

The loſs was immenſe, and is difficult to calculate. Conſidering the buildings alone, it may be aſſerted without heſitation, that, dividing them into four parts, two were levelled with the ground; the third half laid in ruins, and the fourth greatly damaged. Among the latter were the houſes ſituated on the declivity of the hills, which have for their foundation granite, as we ſhall notice again in another place. (Chap. XXIX.) Thoſe which were moſt completely ruined, and likewiſe the firſt to fall, were ſuch as ſtood in the plain, and eſpecially on the curvature of the harbour, on a ground leſs ſolid, as it had been formed by the waſhing and depoſitions of the ſea. The mole of the harbour, which extended more than a mile in length, and was reſorted to for the beauty of the proſpect, was entirely ſwallowed up by the ſea, ſo that no veſtige of it remained to point out where it once was.

Among the ruined edifices the moſt conſiderable was the above-mentioned *Palazzata*, called likewiſe the maritime theatre; the royal palace; the palace of the ſenate, of noble architecture; the exchange of the merchants; the celebrated college, with the temple annexed; the church and profeſſional-houſe of the ex-jeſuits; the archbiſhop's palace, with the baſilica of San. Niccolo; the ſeminary of the clergy, the hall of the tribunals, the church of the annunciation of the Theatines; that of the Carmelites, and of the priory of the Hieroſolymitans, with ſeveral other fabrics both ſacred and profane; without mentioning the palaces of the nobles and opulent citizens, all of an elegant architecture.

* In the following years, however, earthquakes again renewed the terrors of the people. The following is the extract of a letter from the Abbate Grano to me, of the 11th of May 1792:

"Yeſterday we had a whole day, as I may ſay, full of earthquakes. I counted as many as thirty ſhocks, but all ſlight, and which occaſioned no damage."

I embrace with the utmoſt pleaſure this opportunity of thus publicly expreſſing my gratitude to and doing juſtice to the merits of this my illuſtrious friend, the Meſſineſe nobleman abovementioned, and whom I ſhall again have occaſion to cite.

As he is verſed in the ſtudies of philoſophy and natural hiſtory, he had the goodneſs to accompany me in my excurſions in different parts of his country, and his ſcientific aſſiſtance was of the greateſt advantage to me. This aſſiſtance he not only afforded me when preſent, but even when abſent, furniſhing me with various local notices which might render my accounts relative to thoſe countries more intereſting; and his induſtry and circumſpection in the examination of nature, and his ſincere love of the inveſtigation of truth, leave no doubt of the accuracy of his obſervations.

It

It is impoſſible to eſtimate the loſs ſuffered by the deſtruction of the numerous monuments of the arts, libraries, and galleries of pictures, with which Meſſina was embelliſhed, where the imitative arts had long flouriſhed.

Equally impoſſible is it to calculate the loſs ſuſtained by the valuable effects that were buried beneath the ruins, or burned in the fires which after the earthquake broke out in various parts of the city. We muſt alſo add the expence of building the wooden ſheds and huts neceſſary to ſhelter the inhabitants, and for the reception of ſuch moveables or commodities as had been ſaved from the ruins; which expence was extremely great from the high price to which all the materials for building immediately roſe, and the great wages required by workmen of every kind.

Yet, notwithſtanding all theſe loſſes and expences, which muſt greatly have impoveriſhed the country, not a ſingle merchant became a bankrupt; a circumſtance which redounds highly to the honour of Meſſina, as it is certain that no event can happen which furniſhes a more plauſible excuſe to the fraudulent dealer than an earthquake.

The King of the Two Sicilies has omitted no means that may contribute to the reſtoration of Meſſina. He has exempted it from all public impoſts, given conſiderable ſums from his own purſe, granted a free port, juriſdiction of magiſtrates, &c. Yet the immenſe loſſes the city has ſuffered, notwithſtanding every aſſiſtance, cannot be repaired under a great length of time.

The buildings have ſince been conſiderably increaſed and improved, ſo that more than one half of the city is now rebuilt, and the people have left the ſheds and taken poſſeſſion of the new houſes.

It appeared to me that this conciſe relation of the late dreadful earthquakes at Meſſina, and their conſequences, would be acceptable to the curious and learned reader. We will now proceed to the deſcription of other objects deſerving attention in this celebrated ſtrait and its mountainous environs.

CHAP.

CHAP. XXVI. — OBSERVATIONS ON SCYLLA AND CHARYBDIS.

A kind of confuſed noiſe, like the barking of dogs, heard on approaching the rock of Scylla, produced by the daſhing of the waves of the ſea.—Images highly reſembling nature exhibited by Homer and Virgil in their perſonifications of Scylla.—The appearance of this rock the ſame at preſent as in the time of the Greek poet.—The ſea there of the ſame height as formerly.—Great danger of daſhing on the rock of Scylla when the current runs from ſouth to north, and impetuous ſouth wind blows at the ſame time.—Mariners at Meſſina, whoſe buſineſs it is to aſſiſt veſſels in danger.—Ships eaſily wrecked without this aſſiſtance, though thoſe who ſteer them ſhould be very expert ſeamen.—Tempeſt obſerved by the author in the Strait of Meſſina, and the courage with which theſe Meſſineſe ſailors brought a veſſel in diſtreſs ſafely into harbour.—Preciſe ſituation of Charybdis.—Until the preſent time conſidered as a true whirlpool.—The fragments of ſhips ſwallowed up in it carried, as ſome have believed, thirty miles.—Anecdote relative to this opinion.—Phenomena of the current of the Strait, which aſcends and deſcends by intervals.—Viſit of the author to Charybdis.—Its appearance as firſt ſeen from the ſhore.—Obſervations made on a nearer approach, and on entering it in a boat.—Charybdis not properly a whirlpool, but an inceſſant motion of agitated waters, which aſcend, deſcend, duſh, and rebound.—Conſequences which followed on throwing certain bodies into it.—No gulph below Charybdis.—Depth of the ſea much leſs there than in the middle of the Strait.—Charybdis cannot even be called a whirlpool in tempeſtuous weather.—Cauſe of the loſs of ſhips that are drawn into it.—Recent ſhipwreck which happened in it without any appearance of a whirlpool.—Origin of this error.—None of the numerous writers who have mentioned Charybdis, ſay that they had viſited and examined it.—Charybdis twelve miles diſtant from Scylla, though Homer ſtyles it very near.—Improbable that any ſuch change can have taken place in the Strait of Meſſina, as to have removed Charybdis ſo far from Scylla.—Change that has happened in the preſent age, much poſterior to the date of the accounts of a number of writers who place Charybdis in the ſituation where it is now found.—Truth and phyſical explanation of the proverb, that "he who endeavours to ſhun Charybdis daſhes upon Scylla."—Scylla and Charybdis, according to the ancients, dangerous from frequent tempeſts and ſhipwrecks.—Very different in the preſent times.—Enquiry into the cauſe of this difference.—It probably is to be aſcribed to the improvements made in the art of navigation.—Examples in proof of this afforded by the Adriatic and the Cape of Good Hope.

SCYLLA and Charybdis, according to the fables of the poets, are two ſea-monſters whoſe dreadful jaws are continually diſtended to ſwallow unhappy mariners; the one ſituated on the right, and the other on the left extremity of the ſtrait of Meſſina, where Sicily fronts Italy.

Dextrum Scyllæ latus, lævum implacata Charybdis
Obſidet, atque imo barathri ter gurgite vaſtos
Sorbet in abruptum fluctus, rurſuſque ſub auras
Erigit alternos, et ſidera verberat unda.
At Scyllam cæcis cohibet ſpelunca latebris
Ora exertantem, et naves in ſaxa trahentem.
Prima hominis facies et pulchro pectore virgo
Pube tenus; poſtrema immani corpore priſtis
Delphinûm caudas utero commiſſa luporum.

VIRG. ÆNEID, lib. iii.

Far on the right her dogs foul Scylla hides;
Charybdis roaring on the left preſides,
And in her greedy whirlpool ſucks the tides.
Then ſpouts them from below; with fury driv'n,
The waves mount up and waſh the face of heav'n.
But Scylla from her den, with open jaws,
The ſinking veſſel in her eddy draws,
Then daſhes on the rocks: a human face,
And virgin boſom, hide her tail's diſgrace;
Her parts obſcene below the waves deſcend,
With dogs inclos'd, and in a dolphin end. DRYDEN.

I have no difficulty in availing myſelf of the deſcription of a poet in a work dedicated to the inveſtigation of truth; nor ſhall I heſitate to cite ſimilar paſſages from another poet, ſince, however exaggerated theſe may be by the glowing colours of imagination, they contain truth, and afford a ſubject for intereſting enquiries.

I ſhould have thought myſelf to have merited the greateſt cenſure if, when I was in the Strait of Meſſina, I had not viſited two places of which ſo much has been written, and which have been rendered ſo famous by the numerous ſhipwrecks they have occaſioned.

I firſt proceeded in a ſmall boat to Scylla. This is a lofty rock diſtant twelve miles from Meſſina, which riſes almoſt perpendicularly from the ſea, on the ſhore of Calabria, and beyond which is the ſmall city of the ſame name. Though there was ſcarcely any wind, I began to hear, two miles before I came to the rock, a murmur and noiſe, like a confuſed barking of dogs, and on a nearer approach readily diſcovered the cauſe. This rock in its lower part contains a number of caverns; one of the largeſt of which is called by the people there *Dragara*. The waves, when in the leaſt agitated, ruſhing into theſe caverns, break, daſh, throw up frothy bubbles, and thus occaſion theſe various and multiplied ſounds. I then perceived with how much truth and reſemblance of nature Homer and Virgil, in their perſonifications of Scylla, had pourtrayed this ſcene, by deſcribing the monſter they drew as lurking in the darkneſs of a vaſt cavern, ſurrounded by ravenous, barking maſtiffs, together with wolves to increaſe the horror.

Ἐνθα δ' εν Σκυλλη ναιει δεινον λελακυια
Της ητοι φωνη μεν ὁση σκυλακος νεογιλης
Γινεται. HOM. ODYSS. XII.

Here Scylla bellows from her dire abodes,
Tremendous peſt! abhorr'd by man and gods!
Hideous her voice, and with leſs terrors roar
The whelps of lions in the midnight hour.
POPE.

The Greek poet, when he pourtrays the rock which is the habitation of Scylla, finiſhes the picture higher than the Latin, by repreſenting it as ſo lofty that its ſummit is continually wrapped in the clouds; and ſo ſteep, ſmooth, and ſlippery, that no mortal could aſcend it, though he had twenty hands and twenty feet.

Οι δε δυω σκοπελοι, ὁ μεν ουρανον ευρυν ικανει
Ὀξεια κορυφη νεφελη δε μιν αμφιβεβηκε
Κυανεη το μεν ουποτ', ἐρωει ουδεποτ' αιθρη
Κεινου εχει κορυφην, ουτ' εν θερει, ουτ' εν οπωρη
Ουδε κεν αμβαιη βροτος ανηρ ου καταβαιη
Ουδ' ει οἱ χειρες γε εικοσι, και ποδες ησαν
Πετρη γαρ λισ εστι περιξεστη εικυια. HOM. OD. XII.

High in the air the rock its ſummit ſhrowds
In brooding tempeſts and in rolling clouds;

Loud

Loud ſtorms around, and miſts eternal riſe,
Beat its bleak brow, and intercept the ſkies.
When all the broad expanſion bright with day
Glows with th' autumnal or the ſummer ray:
The ſummer and the autumn glow in vain;
The ſky for ever low'rs, for ever clouds remain.
Impervious to the ſtep of man it ſtands;
Though borne by twenty feet, though arm'd with twenty hands.
Smooth as the poliſh of the mirror riſe
The ſlippery ſides, and ſhoot into the ſkies. POPE.

Such, three thouſand years ago, or nearly ſo, appeared the rock of Scylla, according to the obſervations of Homer; and ſuch is nearly its appearance at this day.

The accuracy of this truly "firſt great painter of antiquity," which has likewiſe been obſerved by ſcientific travellers in other deſcriptions which he has given, ſhews that the level of the waters of the ſea was at that time at nearly the ſame height as at preſent, ſince, had it ſunk only a few fathoms, it muſt have left the foot of the rock, which according to my obſervations is not very deep, entirely dry. And this I conſider as one among ſeveral ſtrong arguments, that the moſt remarkable ſinkings of the ſea are anterior to the time of Homer.

Such is the ſituation and appearance of Scylla: let us now conſider the danger it occaſions to mariners. Though the tide is almoſt imperceptible in the open parts of the Mediterranean, it is very ſtrong in the Strait of Meſſina, in conſequence of the narrowneſs of the channel, and is regulated, as in other places, by the periodical elevations and depreſſions of the water. Where the flow or current is accompanied by a wind blowing the ſame way, veſſels have nothing to fear; ſince they either do not enter the Strait, both the wind and the ſtream oppoſing them, but caſt anchor at the entrance; or if both are favourable enter on full ſail, and paſs through with ſuch rapidity that they ſeem to fly over the water. But when the current runs from ſouth to north, and the north wind blows hard at the ſame time, the ſhip which expected eaſily to paſs the Strait with the wind in its ſtern, on its entering the channel is reſiſted by the oppoſite current, and impelled by two forces in contrary directions, is at length daſhed on the rock of Scylla, or driven on the neighbouring ſands; unleſs the pilot ſhall apply for the ſuccour neceſſary for his preſervation. For to give aſſiſtance in caſe of ſuch accidents, four-and-twenty of the ſtrongeſt, boldeſt, and moſt experienced ſailors, well acquainted with the place, are ſtationed night and day along the ſhore of Meſſina, who, at the report of guns fired as ſignals of diſtreſs from any veſſel, haſten to its aſſiſtance, and tow it with one of their light boats. The current, where it is ſtrongeſt, does not extend over the whole Strait, but winds through it in intricate meanders, with the courſe of which theſe men are perfectly acquainted, and are thus able to guide the ſhip in ſuch a manner as to avoid it. Should the pilot, however, confiding in his own ſkill, contemn or neglect this aſſiſtance, however great his ability or experience, he would run the moſt imminent riſk of being ſhipwrecked. In this agitation and conflict of the waters, forced one way by the current, and driven in a contrary direction by the wind, it is uſeleſs to throw the line to diſcover the depth of the bottom, the violence of the current frequently carrying the lead almoſt on the ſurface of the water. The ſtrongeſt cables, though ſome feet in circumference, break like ſmall cords. Should two or three anchors be thrown out, the bottom is ſo rocky that they either take no hold, or, if they ſhould, are ſoon looſened by the violence of the waves. Every expedient afforded by the art of navigation, though it might ſucceed in ſaving a ſhip in other parts of the Mediterranean, or even the tremendous ocean, is uſeleſs here. The only means of avoiding being daſhed againſt the rocks,

or driven upon the ſands, in the midſt of this furious conteſt of the winds and waves, is to have recourſe to the ſkill and courage of theſe Meſſineſe ſeamen.

In proof of the truth of this aſſertion, I might adduce many inſtances related to me by perſons deſerving of credit. But I was myſelf an eye-witneſs to the ſituation of a trading veſſel from Marſeilles, which had one day entered the Strait by the mouth on the north ſide, at the time that I was on a hill looking towards the ſea. The current and a north wind, which then blew ſtrong, being both in its favour, the veſſel proceeded under full ſail into, and had paſſed one half of the Strait, when on a ſudden the ſky became overcaſt with thick clouds, and violent guſts of wind aroſe, which in an inſtant changed the direction of the current, and turned up the ſea from its bottom. The mariners had ſcarcely time to hand the ſails, while the furious waves broke over the ſhip on every ſide. Whether they merely followed the practice uſual with ſhips in diſtreſs, or whether they were acquainted with the laudable cuſtom of the Meſſineſe, I cannot ſay; but they fired two guns: immediately upon which one of the barks employed on this ſervice haſtened to the aſſiſtance of the diſtreſſed veſſel, and taking it in tow, began to make every exertion to carry it ſafely into the harbour.

If I had ſeen with fear and ſhuddering the danger of the ſailors on board the veſſel, which I expected every moment would be ſwallowed up in the waves; I beheld with wonder and pleaſure the addreſs and bravery of the Meſſineſe mariners, who had undertaken to ſteer ſafely through ſo ſtormy a ſea the ſhip entruſted to their care. They extricated it from the current which impelled it towards deſtruction; changed the helm to this ſide or to that; reefed or let out the ſails, as the wind increaſed or abated; avoided the impetuous ſhocks of the waves by meeting them with the prow, or oppoſing to them the ſide, as either method appeared moſt proper to break their violence; and by theſe and other manœuvres which I am unable to deſcribe, theſe brave mariners, amid this dreadful conflict of the ſea and the winds, ſucceeded in their undertaking, and brought the veſſel ſafe into the harbour.

But enough of Scylla:—we will now proceed to Charybdis. This is ſituated within the Strait, in that part of the ſea which lies between a projection of land named *Punta Secca*, and another projection on which ſtands the tower called *Lanterna*, or the light-houſe, a light being placed at its top to guide veſſels which may enter the harbour by night.

On conſulting the authors who have written of Charybdis, we find that they all ſuppoſed it to be a whirlpool. The firſt who has aſſerted this is Homer, who has repreſented Charybdis as a monſter which three times in a day drinks up the water, and three times vomits it forth.

—— δια Χαρυβδις αναρροιβδει μελαν ὑδωρ,
Τρις μεν γαρ τ' ανιησιν επ' ἡμαθι, τρις δ' αναρροιβδει.
Δεινον. HOM. ODYSS. XII.

Beneath Charybdis holds her boiſterous reign
Midſt roaring whirlpools, and abſorbs the main;
Thrice in her gulphs the boiling ſeas ſubſide,
Thrice in dire thunders ſhe refunds the tide. POPE.

The deſcription of Virgil above cited differs from that of Homer only in placing a deep gulph below. Strabo, Iſidorus, Tzetzes, Heſychius, Didymus, Euſtathius, &c. repeat the ſame. The Count de Buffon adopts the idea of Homer in full confidence, and places Charybdis among the moſt celebrated whirlpools of the ſea; "Charybdis, in the Strait of Meſſina, abſorbs and rejects the water three times in twenty-four hours *." Strabo

* Buffon, Hiſt. Nat. tom. ii. in 12mo.

tells

tells us, that the fragments of ſhips ſwallowed up in this whirlpool are carried by the current to the ſhore of Tauromenium (the preſent Taormina), thirty miles diſtant from Charybdis *. In confirmation of this tradition, an amuſing though tragical anecdote is related of one Colas, a Meſſinean diver, who, from being able to remain a long time under the water, had acquired the ſurname of *Peſce* (the fiſh). It is reported that Frederick King of Sicily, coming to Meſſina purpoſely to ſee him, made trial of his abilities with a cruel kind of liberality, by throwing a golden cup into Charybdis, which, if he brought it up, was to be the reward of his reſolution and dexterity. The hardy diver, after having twice aſtoniſhed the ſpectators by remaining under water a prodigious length of time, when he plunged a third time appeared no more; but ſome days after his body was found on the coaſt near Taormina.

From the authorities here adduced, it is evident that Charybdis has hitherto been conſidered as a real whirlpool by both ancient and modern travellers who have given any account of it.

As I was therefore ſo near to this celebrated place, I determined to endeavour to aſcertain if poſſible what it really is. It is diſtant from the ſhore of Meſſina about 750 feet, and is called by the people of the country *colofaro*, not from the agitation of the waves, as ſome have ſuppoſed, but from καλος and φαρος; i. e. *the beautiful tower*, from the light-houſe erected near it for the guidance of veſſels. The phenomenon of the calofaro is obſervable when the current is deſcending; for when the current ſets in from the north, the pilots call it the *deſcending rema* †, or current; and when it runs from the ſouth, the *aſcending rema*. The current aſcends or deſcends at the riſing or ſetting of the moon, and continues for ſix hours. In the interval between each aſcent or deſcent there is a calm which laſts at leaſt a quarter of an hour, but not longer than an hour. Afterwards, at the riſing or ſetting of the moon, the current enters from the north, making various angles of incidence with the ſhore, and at length reaches the calofaro. This delay ſometimes continues two hours. Sometimes it immediately falls into the calofaro, and then experience has taught that it is a certain token of bad weather.

As I was aſſured by the pilots moſt experienced in this practical knowledge, that there was no danger in viſiting the calofaro, I reſolved to avail myſelf of the opportunity. The bark in which I made the experiment was managed by four expert mariners, who perceiving me ſomewhat intimidated as I approached the place, encouraged me, and aſſured me they would give me a very near view of the calofaro, and even carry me into it without the leaſt danger.

When I obſerved Charybdis from the ſhore, it appeared like a group of tumultuous waters; which group as I approached became more extenſive and more agitated. I was carried to the edge, where I ſtopped ſome time to make the requiſite obſervations, and was then convinced, beyond the ſhadow of a doubt, that what I ſaw was by no no means a vortex or a whirlpool.

Hydrologiſts teach us that by a whirlpool in a running water we are to underſtand that circular courſe which it takes in certain circumſtances; and that this courſe or revolution generates in the middle a hollow inverted cone, of a greater or leſs depth, the internal ſides of which have a ſpiral motion. But I perceived nothing of this kind in the calofaro. Its revolving motion was circumſcribed to a circle of at moſt an hundred feet in diameter, within which limits there was no incurvation of any kind nor vertigi-

* Καταποθεντων δε και διαλυθεντων τα ναυαγια παρασυρεται προς ηιονα της Ταυρομενιας. Lib. vi.

† I have obſerved that at Meſſina, as well as in other parts of Sicily, words of the Greek language, which was once that of this iſland, are ſtill retained. Thus the word *rema*, derived from ρευμα, a flowing or ſtream, is uſed to ſignify the current of this Strait.

nous motion, but an inceſſant undulation of agitated waters, which roſe, fell, beat, and daſhed on each other. Yet theſe irregular motions were ſo far placid, that nothing was to be feared in paſſing over the ſpot which I did; though our little bark rocked very much from the continual agitation, ſo that we were obliged conſtantly to make uſe of our oars to prevent its being driven out of the calofaro. I threw ſubſtances of different kinds into the ſtream. Such as were ſpecifically heavier than the water, ſunk and appeared no more; thoſe which were lighter remained on the ſurface, but were ſoon driven out of the revolving circle by the agitation of the water.

Though from theſe obſervations I was convinced that there was no gulph under the calofaro, as otherwiſe there would have been a whirlpool, which would have carried down into it the floating ſubſtances, I determined to ſound the bottom with the plummet, and found its greateſt depth did not exceed five hundred feet. I was likewiſe informed, to my no ſmall ſurpriſe, that beyond the calofaro, towards the middle of the Strait, the depth was double.

I could not therefore but conclude from theſe facts, that at that time there was no whirlpool in Charybdis. I ſay *at that time*, ſince the caſe might be very different when the ſea was tempeſtuous. I therefore made enquiry relative to this of the pilots, thoſe eſpecially who, from their tried experience, were appointed by the public to give aſſiſtance in ſtorms to foreign veſſels, and who had frequently ſeen Charybdis in its greateſt fury. The following is the ſubſtance of the anſwers they gave me:

When the current and the wind are contrary to each other, and both in their greateſt violence, eſpecially when the ſcilocco, or ſouth wind, blows, the ſwelling and daſhing of the waves within the calofaro is much ſtronger, more impetuous, and more extenſive. It then contains three or four ſmall whirlpools, or even more, according to the greatneſs of its extent and violence. If at this time ſmall veſſels are driven into the calofaro by the current or the wind, they are ſeen to whirl round, rock, and plunge; but are never drawn down into the vortex. They only ſink when filled with water by the waves beating over them. When veſſels of a larger ſize are forced into it, whatever wind they have they cannot extricate themſelves; their ſails are uſeleſs; and after having been for ſome time toſſed about by the waves, if they are not aſſiſted by the pilots of the country, who know how to bring them out of the courſe of the current, they are furiouſly driven upon the neighbouring ſhore of the Lanterna, where they are wrecked, and the greater part of their crews periſh in the waves *.

If we conſider maturely theſe facts, we ſhall find that a great part of what has been written relative to Charybdis is very erroneous. We have ſeen how many authors, from Homer to the preſent time, have deſcribed it as a real whirlpool, or great gulph revolving in itſelf, within the circumference of which ſhould any ſhip enter it is immediately drawn to the centre and ſwallowed up. When the current is dying away, or when there is no current, this deſcription has no reſemblance to truth—Charybdis is

* The following account of the ſhipwreck of a veſſel in the calofaro was ſent me, after my return from Sicily, by the Abbate Grano from Meſſina:

"About three weeks ago we were ſpectators of the ſinking of a Neapolitan polacca in the calofaro, on its paſſage from Puglia, laden with corn. A moſt violent ſouth-eaſterly wind blew, and the veſſel, with all ſails ſet, endeavoured to reach the harbour, ſtanding off from the calofaro; but the head of the current from the entrance by the faro took her, and drew her impetuouſly into it; where, without being able to make uſe of her ſails, ſhe remained for ſome time toſſed about by the waves, which at length either breaking over her, or opening her ſides by their furious beating, ſent her to the bottom. The crew, however, and a part of the cargo, were ſaved by the ſpeedy aſſiſtance given by our mariners in two ſmall barks, who had the courage to encounter the danger. You will perceive from this in what manner the waves may ſink ſhips in Charybdis, without the neceſſity of ſuppoſing a whirlpool."

then

then perfectly innocent, as I have been fully convinced by my own obſervations; and even when it is agitated and dangerous, it ſtill contains no incavation or gulph of the nature of a vortex, but merely a ſtrong agitation and daſhing of its waves, which produces thoſe ſmall whirlings of its waters, which are only accidental, and not to be feared. So far likewiſe is Charybdis from drawing to itſelf and ſwallowing veſſels, that it rather repels them and throws them to a diſtance.

This error has ariſen like many others with reſpect to the productions of nature. Homer, in relating the voyage of Ulyſſes through the Strait of Meſſina, was the firſt who deſcribed Charybdis as an immenſe vortex which abſorbs and rejects the water, and the ſhips that approach it; exemplifying his account by the fate of ſome of the companions of his hero, who were carried away by the whirlpool. The writers who came after him, whether poets, orators, hiſtorians, or geographers, have followed him in this deſcription, without any one of them taking the pains to repair to the place and examine it himſelf. Even Fazello the Sicilian, who was ſo induſtrious in aſcertaining facts, and whoſe accounts of his country are ſo accurate, clearly ſhews in his deſcription of Charybdis that he had never obſerved it himſelf; and concludes his narration with the erroneous ſuppoſition above cited, that the things ſwallowed up by Charybdis are conveyed by ſubmarine currents to the ſhores of Taormina.

Among all who have written on this ſubject, we only find Cluverius who ſeems, at leaſt at firſt view, to have viſited the place, I ſhall tranſcribe his words:

"Ego ſane, cum Charybdis noſcendæ gratia aliquot dies Meſſanæ ſubſiſterem, et ab hominibus ejus loci, maximè vero nautis, non Siculis modo, ſed et Belgis, Britannis et Gallis, qui hoc fretum frequentes navigant, diligentius eam rem ſciſcitarer, nihil omnino certi ipſis perdiſcere potui, adeo ſcilicet totum negotium omnibus obſcurum et incognitum erat. Tandem tamen reperi Charybdim, quæ incolis, patriis vocabulis, dicitur *calofaro*, ſub prædicta ad Meſſanenſem portum pharo eſſe mare rapide fluens, atque in vortices actum: quod non τρις επ' ἡμαϑι ut tradit Homerus, id eſt *ſingulis diebus ter*, abſorbet ingenti gurgite, revomitque aquas, ſed quoties vehementiori fluctu fretum comitatur."

"I remained ſome days at Meſſina, with a view to obtain ſome information relative to Charybdis; but though I made every enquiry of the people of the place, and principally the ſailors, not the Sicilian only, but the Italian, Dutch, Engliſh, and French, who frequently navigate that ſtrait, I could learn nothing ſatisfactory—ſo little was known by them on the ſubject. At length, however, I found Charybdis, which the natives call *Calofaro*, under the light-houſe before mentioned, near the harbour, to be a ſea rapidly flowing, and forming vortices. It does not abſorb the waters in its vaſt gulph, and reject them *thrice in a day*, as Homer tells us, but as often as the ſea runs high in the Strait."

From the expreſſion "I found Charybdis" we might be induced to believe that he made his obſervations on the ſpot. It is certain, however, that he does not explicitly tell us ſo: and when treating of a phenomenon of which he was ſo anxious to obtain an accurate knowledge, which he could not procure even from the Meſſineſe ſailors, it is ſtrongly to be preſumed that he would not have ſuppreſſed a circumſtance of that importance. As Charybdis may be ſeen from the ſhore, if he only went thither, and turned his eyes towards it, he might with truth aſſert he had diſcovered it. The other adjuncts to his account, that Charybdis is a rapid ſea, and that it abſorbs and rejects the water in a ſtorm, convince me that he had not a juſt idea of it, but ſatisfied himſelf with the old tradition concerning Charybdis.

It

It may be obſerved that the ſituation of Charybdis, as it has been hitherto deſcribed, does not exactly agree with that aſſigned it by Homer. Let us refer to the poet. The goddeſs Circe gives the following directions to Ulyſſes, with reſpect to the navigation of the Strait of Meſſina:

Οι δε δυω σκοπελοι, ὁ μεν ουρανον ευρυν ικανει . . . .
Τον δ' ἑτερον σκοπελον χθαμαλωτερον οψει Οδυσσευ,
Πλησιον αλληλων και κεν διοιστευσειας.
Τῳ δ' εν ἐρινεος ἐστι μεγας φυλλοισι τεθηλως,
Τὴν δ' ὑπο δια Χαρυβδις αναρροιβδεει μελαν ὑδωρ. Hom. Odyss XII.

High o'er the main two rocks exalt their brow . . . .
Cloſe by, a rock of leſs enormous height
Breaks the wild waves, and forms a dangerous ſtreight,
Full on its crown a fig's green branches riſe,
And ſhoot a leafy foreſt to the ſkies;
Beneath, Charybdis holds her boiſt'rous reign
Midſt roaring whirlpools, and abſorbs the main. Pope.

The firſt of the rocks here mentioned by Homer is Scylla, which he deſcribes at length; and near the other, according to this poet, Charybdis is ſituated. The diſtance from one of theſe rocks to the other is an arrow's flight, και κεν διοιστευσειας, which does not at all accord with the preſent ſituation of Scylla. How are we to explain this diſagreement? Shall we ſay that Homer, availing himſelf of the licence in which poets are indulged, has ſpoken hyperbolically? I know not whether the connoiſſeurs in poetry will permit ſuch a licence. Or ſhall we ſuppoſe that Charybdis was once much nearer to Scylla; but that in a long ſeries of ages, it has changed its place and removed under Meſſina? Such a ſuggeſtion might perhaps be favourably received, if in remote times any conſiderable change had taken place in the Strait; but we know not of any; and it is not probable that a change ſo remarkable as the removal of Charybdis from its place, would have been paſſed over in ſilence by Sicilian writers. Within the preſent century, it is true, this Strait, of which ſo much has been ſaid, has become narrower, as we ſhall ſee in Chap. XXIX.; but at the ſame time we know that long before this event Charybdis was ſituated where it is at preſent. The ancient and uninterrupted tradition of the Meſſineſe reſpecting this fact is confirmed by the authority of the moſt celebrated Italian, Latin, and Greek writers.—Fazello tells us, "Charybdis ex parte Siciliæ, paulo ſupra Meſſanam;"—"Charybdis is ſituated on the ſide of Sicily, a little beyond Meſſina.—Ovid ſays,

"Hinc ego dum muter, vel me Zanclæa Charybdis
Devoret!"

"Let dire Charybdis in Zanclæan ſeas
Devour me if I change!"

And it is well known that Zancle was the ancient name of Meſſana, now Meſſina. Tzetzes in Lycophron ſays, Ἡ Χαρυβδις περι Μεσσηνην εστι,—"Charybdis is ſituated near Meſſina."—Strabo likewiſe, after having mentioned Meſſina, proceeds, Δεικνυται και Χαρυβδις, μικρον προ της πολεως, εν τῳ πορθμῳ—"Charybdis is ſeen in the Strait a little before we reach the city." Several other writers might be cited to the ſame purpoſe.

From all theſe reaſons and hiſtorical teſtimonies we muſt then conclude that Homer was not exact with reſpect to the ſituation of Charybdis; nor can it be a great offence to ſay that, in this paſſage of his long poem he has certainly nodded. The accuracy of ſeveral of his deſcriptions of various places in Sicily cannot be denied. It is ſuch that we muſt either ſuppoſe that he had himſelf travelled in thoſe parts, as is the opinion of many; or at leaſt that he had procured very faithful and circumſtantial information from

from others. Of this the rocks of Scylla are an example. But as to the ſuppoſed whirlpool of Charybdis and its ſituation, I think we may venture to affirm he never ſaw it himſelf, and that the accounts he had received of it led him into error.

We will now enquire what foundation there is for the ſaying which became proverbial, that "he who endeavours to avoid Charybdis, daſhes upon Scylla;" and which was applied by the ancients to thoſe who, while they ſought to ſhun one evil, fell into a worſe.

On this ſubject I likewiſe made enquiries of the Meſſineſe pilots above mentioned, and to what better maſters could I apply for the elucidation of ſuch a proverb? They told me that this misfortune, though not always, yet frequently happens, unleſs proper meaſures are taken in time to prevent it. If a ſhip be extricated from the fury of Charybdis, and carried by a ſtrong ſoutherly wind along the Strait, towards the northern entrance, it will paſs out ſafely; but ſhould it meet with a wind in a nearly oppoſite direction, it will become the ſport of both theſe winds, and, unable to advance or recede, be driven in a middle courſe between their two directions, that is to ſay, full upon the rock of Scylla, if it be not immediately aſſiſted by the pilots. They added, that in theſe hurricanes a land wind frequently riſes, which deſcends from a narrow paſs in Calabria, and increaſes the force with which the ſhip is impelled towards the rock.

Before I began to write on Scylla and Charybdis, I peruſed the greater part of the ancient authors who have written on the ſubject. I obſerve that they almoſt all repreſent theſe diſaſtrous places in the moſt gloomy and terrifying colours, as continually the ſcene of tempeſts and ſhipwrecks. Theſe terrors and this deſtruction, however, they are far from exhibiting in the preſent times; it rarely happening that any ſhips are loſt in this channel, either becauſe their pilots poſſeſs the knowledge requiſite for their preſervation, or becauſe they apply for the neceſſary aſſiſtance. Whence then ariſes this great difference between ancient times and the preſent? Can we ſuppoſe that Scylla and Charybdis have changed their nature and become leſs dangerous? With reſpect to the former, we have ſeen that this hypotheſis is contradicted by fact, Scylla ſtill remaining ſuch as it was in the time of Homer; and with regard to the latter, from the Strait of Meſſina becoming narrower, Charybdis muſt be at preſent more to be feared than formerly, as it is well known that an arm, channel, or ſtrait of the ſea is the more dangerous in proportion as it is narrow. I am rather of opinion that this difference ariſes from the improvement of the art of navigation, which formerly in its infancy dared not launch into the open ſea, but only creep along the ſhore, as if holding it with its hand—

> "Alter remus aquas, alter tibi radat arenas,
> Tutus eris; medio maxima turba mari." PROPERT. lib. iii.
>
> "To ſhun the dangers of the ocean, ſweep
> The ſands with one oar, and with one the deep."

But time, ſtudy, and experience have rendered her more mature, better informed, and more courageous; ſo that ſhe can now paſs the wideſt ſeas, brave the moſt violent tempeſts, and laugh at the fears of her childhood.

To exemplify and ſupport the probability of this opinion, it will not be neceſſary to recur to the early and rude ages; much more modern times will furniſh us with ſufficient proofs. That part of the Adriatic which ſeparates Venice from Rovigno in Iſtria, is certainly not the moſt propitious ſea to navigators. The danger of being hurried in ſix hours from one ſhore to the other, and there ſtranded; the frequency of violent winds which prevail there; the ſhallows and ſand-banks which break the waves, and render them wild and irregular, may certainly cauſe ſome ſerious reflection in thoſe who embark to make the paſſage. So late as the laſt century, the ſhipwrecks in this ſea

were

were so numerous, and had so terrified the people of Rovigno, that when any one was obliged by urgent business or any other cause to go to Venice, he considered himself as more likely to die than live, and if he was the father of a family, used to make his will before he embarked. The Advocate Constantini, a native of that country, and a man of learning and ingenuity, told me when I was there, that he had read more than one of these testaments, deposited among the public archives.

But at present I will not say it is a diversion or pleasure to make this passage, since, as storms are not unfrequent, it is necessary to be cautious; but serious accidents rarely happen. I have myself three times made it without meeting with any cause of alarm. To what can this difference be attributed but to the improvement of the nautical art? Besides that the mariners of Rovigno were not then so expert in the management of their vessels as at present; they made use of certain barks of so improper a construction, as I was assured by the above-mentioned Constantini, that it was impossible they should long resist the violence of the sea. Those, on the contrary, that have been built since that time, being of a broad and flat figure, and very solid, are capable of withstanding the most furious storms. They are there called *bracere*, and are in great reputation in all the neighbouring countries. We here find a part of the sea, in which vessels were formerly so frequently wrecked, and which could not be traversed but at the risk of life, now deprived of all its terrors, and rendered easily passable, merely by the improvements made in the art of navigation.

As a farther and still more convincing proof that the dangers of Charybdis and Scylla, though in themselves the same that they anciently were, have been diminished, and the dread they inspired removed, by the rapid advances to perfection which this art has made in modern times, I shall adduce an example in another sea no less an object of terror from tempests and shipwrecks, I mean the Cape of Good Hope, called the Stormy Cape by the first discoverer, and by the mariners of those times the Raging Lion. How dreadful were the dangers of this place, where the two oceans descending down the opposite sides of Africa met and clashed together; where contending winds, whose power was greater in the boundless ocean; where mountainous waves, rocks, and whirlpools threatened inevitable destruction! What preparations, what caution, were thought necessary for the ship which was to make this dangerous passage! Able pilots who had frequently made the voyage; masts and yards secured by additional ropes; a large supply of sails and cables, thicker and stronger than usual; and a double rudder, that in case one should be damaged, there might be another to act. The mariners were to be fastened to their posts by strong ropes; the passengers shut down below, and the deck left clear for the crew, a number of whom stood with hatchets in their hands, ready to cut away the masts should it be necessary. The guns were stowed in the hold as ballast, and the port-holes, windows, and every kind of aperture, carefully closed. Such were the precautions taken in the last century on doubling the Cape of Good Hope; but how few of them are now necessary to perform this voyage in perfect safety! Of this I have had the satisfaction to be certified by an English gentleman, Mr. Macpherson, with whom I had the pleasure of conversing, in Pavia, in July 1790, and who had twice doubled this Cape in his voyages to India; a gentleman of great respectability for his information, for the various long voyages he has made, and the honourable employments he has held.

The facility with which this passage may now be made, is therefore the consequence of the perfection to which the art of navigation has arrived; and the fame we may conclude with respect to Charybdis and Scylla, which at present have nothing terrible but the name, to those who pass them with the requisite precautions *.

* The minute objects of the concluding chapters are of little consequence.

A

DISSERTATION

ON THE

EARTHQUAKES IN CALABRIA ULTRA;

WHICH HAPPENED IN THE YEAR MDCCLXXXIII.

By the Commander
DEODATUS DE DOLOMIEU.

[Tranſlated from one of the very few Copies publiſhed at Rome in 1784.]

DEDICATED TO DE LASTERIE DU SAILLANT, COMMANDER OF MALTA.

I MIGHT adorn this dedication with the name of ſome of the great on earth, make diſplay of their pompous titles, their imaginary virtues; I prefer that of my friend, a friend of twenty years ſtanding, whoſe title to eulogy this circumſtance will ſtamp. May he deign to accept kindly this public acknowledgement of my attachment.

The Chev. DEODATUS DE DOLOMIEU.

PREFACE.

THE prevalence of contrary winds detaining me on the ſhores of Calabria Ultra during the whole of the months of February and March 1784, and obliging me in ſucceſſion to touch at almoſt all the towns in its weſtern ſhores, I was enabled to make incurſions into this unfortunate province; had time to examine all its ruins, and witneſs the extent of its misfortune. My inclination for lithology induced me to pay attention to the nature of its ſoil, and the compoſition of its mountains, and what I now preſent is the reſult of my reſearches. I have collected principal facts alone, ſuch as local derangements will atteſt for years to come, and which for centuries may continue of intereſt to the ſtudent of nature. Other details form no part of my plan. I ſhall neither give a circumſtantial journal of the earthquakes nor a ſtatement of the population and loſs at each ſeveral place. For this I ſhould have only to copy previous accounts, and my intention is not to make a great book, or to repeat what others have ſaid before. I adhere to that chiefly which has been ſomewhat neglected, that is to ſay, the explaining the nature of the ſoil, and deducing therefrom the principal phenomena which accompanied the ſhocks. I have yet further for object to do away that idea of ſomething miraculous to which preceding accounts may have given birth, relating mountains to have daſhed againſt each other, entire fields to have been tranſported to a conſiderable diſtance from their former ſite, or thrown from one to the other ſide of the valley, &c. facts, not wide of truth, which muſt appear highly extraordinary diveſted of their local circumſtances, but which a knowledge of the ſoil will ſhew to be natural enough. I venture a theoretic opinion alſo which appears to me very probable, but to which I do not attach an importance equal to that of an exact knowledge of the facts whence it is deduced. I ſay very little of Meſſina, or Sicily. In the account afforded by M. L'Allimand the French Conſul is given every thing of conſequence relative to

the deſtruction of that city, whoſe fate, dreadful as it was, is however no wiſe comparable to that of the towns *of the plain* of Calabria.

A multitude of details which I have omitted may be ſeen in different relations publiſhed at Naples, particularly in that of Doctor Vivenzio. But facts, intereſting to the naturaliſt, are there extremely rare, and indeed the work appears to be written (like many others on the ſubject) rather to ſtrengthen the theory which aſcribes earthquakes to electricity, than to give any deſcription of the phenomena which accompanied the deſtruction of Calabria.

The account of Sir William Hamilton is the perception of a good obſerver, who had but a few inſtants to ſpare for examination on his trip to Calabria.

Had the commiſſioners ſent by the Academy of Naples to Calabria thought fit to publiſh the reſult of their reſearches, I ſhould have ſuppreſſed this diſſertation, ſince aſſuredly I could have no room to add any thing to the obſervations which they ought to have made.

I have added in notes ſome particulars, which, though uneſſential to the object of the diſſertation, may yet ſeem to make the text more eaſy of comprehenſion; they contain moreover ſome facts intereſting in other points of view.

I was accompanied by the Chevalier de Godechart, a young man full of zeal, ardour, and ſenſibility. He was of much utility to me in my ſcrutiny, the fatigues attendant on which he ſhared with me with great patience and reſolution.

DISSERTATION, &c.

A tempeſtate nos vindicant portus; nimborum vim effuſam et ſine fine cadentes aquas, tecta propellant: fugientes non ſequitur incendium: adverſus tonitrua et minas cæli, ſubterraneæ domus et defoſſi in altum ſpecus remedia ſunt. In peſtilentia mutare ſede licet. Nullum malum ſine effugio eſt. Hoc malum latiſſime patet inevitabile, avidum, publice noxium. Non enim domos ſolum, aut familias, aut urbes ſingulas hauſit, ſed gentes totas, regioneſque ſubvertit *.

Seneca, Queſt. Natur. Lib. VI.

OF all deſtructive ſcourges earthquakes are the moſt dreadful, the moſt calculated to ſpread terror and conſternation wherever they are felt. Nature, convulſed, ſeems tending to deſtruction, the world towards an end. Similar to the electric ſhock which ſtrikes ere the thunders be heard to warn of the threatened harm, earthquakes ſhake, overthrow, and deſtroy, without any thing foretelling their approach, without an inſtant's time to avoid the impending danger †. Animals, even the moſt ſtupid among them, have an advantage denied to man, a foreboding of theſe fatal events; their inſtinct, or their ſenſes more delicate than ours, by impreſſions of which we have no conception, admoniſh them ſome ſeconds beforehand, when, by their cries and impatience, they ſhew their inquietude and dread ‡. Yet would a ſimilar capacity at all times enable man to place

* Ports ſecure us from ſtorms, the ſheltering roof from ſhower-effuſing clouds and the continued torrent; fire follows not who fly; caves underground, grots dug below the waves, ſhield from the bolts and threatening ſhafts of heaven; the plague is avoided by a change of place; for every ill *beſide* there is a remedy: this wideſt ſpreads inevitable its avidity, and general its harm. For not only does it deſtroy houſes, families, or ſingle towns, it overturns whole nations, and lays whole regions waſte.

† The deſtructive ſhock of the 5th of February was ſudden, inſtantaneous; nothing foretold, nothing announced its happening; it ſhook and overturned at once, nor allowed of time to fly.

‡ The preſcience of animals of the approach of earthquakes is a ſingular phenomenon, and is the more ſurpriſing to us from our ignorance by what ſenſe they receive the intimation. It is common to all ſpecies, particularly

place himſelf in ſafety? No, not the quickeſt flight, the ſtrongeſt * or the ſlighteſt and leaſt elevated building, not all the precautions of human foreſight could ſhield him from the threatened death. In the midſt of his flight he is ſwallowed by the gaping earth †; the ground on which is built his gorgeous palace, or his humble cot, is either ſunk in an abyſs, or carried away to a diſtance, entirely overthrown; now a mountain ſlips from its baſe and loads it with its ruin; and now the valleys cloſe and give it burial. The loſs of his property, although the whole ſhould go, the loſs of his family, his friends, nay death itſelf is not the greateſt ill he has to dread. Interred alive beneath a heap of ruins, which yet break not the vault above his head where he has fought aſylum, he is condemned to die of hunger and madneſs ‡, curſing his friends and family, whoſe indifference he accuſes, and tardineſs to aſſiſt: unwilling they have ſhared a ſimilar fate §, unknowing that thoſe who ſurvive this almoſt general cataſtrophe attempt in vain to releaſe him from the piles with which he is overwhelmed. They hear his voice, his cries,

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particularly dogs, geeſe, and domeſtic fowls. The howlings of the dogs in the ſtreets of Meſſina were ſo violent, that they were ordered to be killed. During eclipſes animals evince a nearly ſimilar inquietude; on the annular eclipſe of the ſun in 1764, the agitation and cries of domeſtic animals continued for a great part of the time, notwithſtanding its light was no more diminiſhed by it, than it would have been by the interpoſition of a dark, thick cloud: the difference of the heat of the atmoſphere was ſcarcely ſenſible. What impreſſion then can animals have of the nature of the body which eclipſes the ſun? How are they able to divine that it is a different circumſtance from the ſun's being veiled by a cloud which intercepts the light?

* Part of the misfortunes of Meſſina are attributable to the want of ſolidity in the buildings; the ruin of this town was promoted a long time before by the earthquakes which at different times ſince 1693 had ſhaken and looſened all the houſes; and the want of population and means of reparation. A new convent ſolidly conſtructed in the middle of the town ſuffered no injury. But in Calabria nothing was capable of reſiſting the violence of the ſhocks. The handſome convent of Benedictines at Soriano, rebuilt with equal magnificence and ſolidity after the earthquakes of 1659, was nearly levelled with the ground; notwithſtanding, for the purpoſe of avoiding the ſame fate it experienced at that period, (an epoch ſimilarly diſaſtrous to Calabria,) the walls were made extremely thick, and the foundations peculiarly good, and of excellent materials.

† A number of peaſants belonging to the plain of Calabria flying acroſs the country were ſeen ulphed in large chaſms, which opened under their feet, and diſappeared:

Inſuper tonitrua ſub pedibus hiat abyſſus.

‡ A fourth part of the victims of the earthquake of February 5th, who were buried alive under the crumbled ruins of their buildings, would have ſurvived if they had been promptly ſuccoured. But in ſuch a general diſaſter there was a want of hands, every one was occupied with his own misfortunes or thoſe of his family, and paid no attention to indifferent perſons. At one inſtant the moſt affecting inſtances of filial and conjugal affection, even to the extent of ſelf-devotion, were exhibited, and acts of cruelty and atrocity which make humanity ſhudder. Whilſt here you ſaw a mother with diſhevelled hair, and covered over with blood, haſten to the ſtill undulating ſpot where a falling beam had ſtruck her infant from her arms, there a bewildered huſband braving death itſelf in ſearch of a darling ſpouſe; at the ſame time might be ſeen monſters daſhing forwards in midſt of the tottering walls, fearleſs of every danger, trampling beneath their feet the half interred bodies of men who claimed their ſuccour in their way, to ſatisfy their blind cupidity, by the plunder of the houſes of the rich. They ſtripped the living bodies of ſuch unfortunate beings as would even have repaid with uſury their charitable aid. I lodged at *Poliſtena* in the hut of a gentleman who was interred beneath the ruins of his houſe, his body immured, his legs aloft in the air. His own ſervant, in lieu of affording him aſſiſtance, after taking the ſilver buckles from his ſhoes, ran off with his booty. For the moſt part, the lower order of people in Calabria evinced incredible depravity in midſt of all the horrors of the earthquake. The greater part of the farming-men were in the fields upon the ſhock of the 5th of February taking place; they immediately ruſhed to the towns ſtill ſmothered in the duſt occaſioned by their recent fall: they flew to them, not to give aſſiſtance, not from any ſentiment of humanity excited by ſuch dreadful circumſtances, but to plunder.

§ I have converſed with a great number of perſons dug from the ruins in the different towns I viſited, all of whom fancied their houſes the only ones that had ſuffered, having no idea of the extent of the deſtruction, and

cries, the bulk of ruin reſiſts their efforts, and hinders his liberation *. They are unable to afford him the ſlighteſt comfort, and to the very laſt does he preſerve the atrocious, the heart rending idea, that all his friends on earth were only wretches and moſt ungrateful monſters. But when fire joins its ravage to that of the quivering earth, to what new horror then is he not ſubject? By ſlow degrees it gains the fallen beams and different wood-work of the ruined buildings; it reaches him at laſt; penned in the fatal ſpot, all effort fruitleſs to avoid his fate, he periſhes the death of ſacrilegious criminals and regicides †, and curſes with apparent reaſon a deſtiny which confounds, with the guilty, the innocent.

Such nevertheleſs was the fate of a part of the victims of the earthquake of 1783. Who then without ſhuddering can contemplate the diſaſters of Calabria? Who without a tear behold the fineſt country in nature ravaged with unexampled fury by earthquakes? Who in ſhort contemplate the ſite of towns where even the ground on which they ſtood has diſappeared, and the poſition of which was only to be determined by the objects with which it was ſurrounded. Such are the firſt ideas that occur to thoſe travelling through Calabria Ultra; ſuch the ſenſations I experienced at every ſtep I took on viſiting this unfortunate province in the months of February and March 1784; ſuch indeed are the impreſſions which prevent our conſidering objects with ſufficient deliberation to examine into effects and thence aſcend to cauſes. The ſtudent of nature

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wondered at the delay of aſſiſtance. A woman in the borough of *Cinco frondi* was found alive on the ſeventh day after the cataſtrophe. Two children near her had periſhed of hunger, and already were in a ſtate of putrefaction. One reclined on its mother's thigh had infected the place of contact ſo as to occaſion it to putrify. Numbers were buried for three, four, and five days; I ſaw them, ſpoke to, and queſtioned them reſpecting their ſenſations in this terrible predicament. Of all the phyſical evils they endured the moſt dreadful to them was thirſt. The firſt expreſſion manifeſted by animals alſo, ſome of which were reſtored to light after a faſt of fifty days, was want of drink; their thirſt was inſatiable. Several perſons thus buried alive ſupported their misfortune with unexampled conſtancy, a conſtancy of which one ſhould think human nature, but from complete ſtupefaction of the intellectual faculties, could not be capable. A pretty woman of *Oppido*, but nineteen years of age, was at that inſtant near her time; ſhe was buried beneath the ruins for the ſpace of thirty hours, and, being extricated by her huſband, was delivered a few hours after as ſafely as as if nothing had happened. I viſited her hut, and among a number of queſtions, I aſked what were her thoughts at the time. — "*I waited*," was her reply.

* In many towns it happened that parents and faithful ſervants, in ſearch of perſons dear to them could hear their moans, could recognize their voices, were certain of the ſpot where they were buried; yet could not ſuccour them. The piled maſs reſiſted all their ſtrength, and made of no avail their zeal and efforts. In vain did they implore another's aid; their groans, their tears, were liſtened to by none. Stretched on the ruins, they were ſeen invoking death to releaſe their relations from their horrid ſituation, invoking it for themſelves, as the only alleviation of their miſery. Yet even this comfort was denied them, as at times for days together they heard the moans of the wretched, buried beneath their feet.

Whole families were overwhelmed together, without a ſingle individual eſcaping; in ſuch caſes the tombs were trampled on where they were inhumed alive, their voices were diſtinguiſhed, yet would not their fate excite a ſingle tear. At *Terra Nova*, four Auguſtine monks, who had taken refuge in a vaulted ſacriſty, the arch of which ſupported the immenſe ruins with which it was overwhelmed, made their cries heard from amidſt the piled heap, for the ſpace of four days even; but one of the convent was ſaved, and of what avail were the ſtrength of one to remove the quantity of rubbiſh which buried his companions? By degrees their voices died away, and ſeveral days after their four bodies were found claſped in each others arms.

More than half the victims cruſhed by the fall of *Terra Nova* remained amid the ruins, and when I paſſed by them on the 20th Feb. 1784, they exhaled a moſt inſupportable and infectious ſtench.

† When all the buildings of the town of *Oppido* were levelled by the moſt violent ſhocks and elevations of the earth, the wood-work of part of the buildings overturned ſucceſſively caught fire; hence it became impoſſible to forward any ſuccour, and moſt of ſuch as might have been ſaved from the ruins were made a prey to the flames. Twenty nuns of the order of St. Clair were diſcovered calcined beneath the wreck of their convent.

muſt be on his guard againſt theſe attacks of ſenſibility as well as againſt the warpings of his imagination to enable him to ſee no more in the origin of the misfortunes of a multitude of families, and the deſtruction of forty thouſand of his fellow creatures, than a ſlight effort of nature *, and to qualify him to ſtrip the various relations of all thoſe diſfigurements with which they have been clothed by terror and ſuperſtition.

Hiſtory makes no mention of any earthquake the ſhocks of which were ſo violent, the effects ſo deſtructive, as thoſe which deſolated Calabria in the year 1783. This phenomenon ſingular enough is ſufficiently impoſing to intereſt the ſtudent of nature, even when ſtripped of the marvellous in which it has been dreſſed in previous relations; and will be beſt explained by feweſt words. The ſhocks were extremely violent †; this is an indiſputable fact. They produced in Calabria Ultra effects, conſequential in themſelves upon regarding local circumſtances; this is a ſecond truth which may require farther elucidation, and which I ſhall endeavour to render equally evident with the former, in deſcribing the nature of the ſoil and the country on which it exerted its greateſt violence. Thence ſhall I deduce the reaſon why certain towns were almoſt wholy exempt from the general ſcourge, notwithſtanding they were comprehended within the ſpace under which its ſtrongeſt efforts were exhibited, near the center where the moſt violent ſhocks were felt; why other towns adjoining them remain but heaps of ruins; and why again others leave behind them no trace of their exiſtence.

The ſhocks of the earthquake in Calabria however violent were experienced on a ſpace by no means great, and appear to have had a local cauſe. Its limits were the extremity of Calabria Citra on the one ſide; eaſtward it exerciſed no great ravage beyond Cape Colonne; nor weſtward beyond the town of Amanthea. Meſſina is the only town in Sicily which participated the diſaſters of the continent; and if beyond this town any ſlight occillations were felt, they were no other than the reſult of a trivial revulſion. The ſpace, therefore, on which this terrible ſcourge diſplayed itſelf, was a length of thirty leagues by the whole breadth of Calabria. Within this ſpace, all places felt not equally the ſhocks, nor ſuffered all the ſame deſtruction. The variety of the conſequences of this earthquake was as great as the diverſity of poſitions. All did not receive ſimilar ſhocks, and theſe effects remain inexplicable with thoſe unacquainted with the nature of the ſoil and local circumſtances.

Calabria Ultra, in its lower part, may be regarded as a peninſula terminating Italy, formed by the indentation of the oppoſite gulphs of *Squilacci* and *Sant Euphemia*. It is

* An effort but little more violent on the part of nature might have proved ſufficient to cauſe a general cataſtrophe, to change entirely the preſent face of things, to plunge in eternal oblivion the preſent age, and ages gone before, to annihilate all monuments of the arts and ſciences of man, and bring back human nature to its moſt early infancy. We calculate the effects of nature from our means alone; ſhe appears to us terrible, and clad in all her might on diverging from any of thoſe laws to which we rate her ſubject, and by which to our viſion ſhe ſeems to be influenced. Yet what to her, compared with the globe, is the ſpace of a dozen of leagues? what indeed with regard to the ſolar ſyſtem were the entire mutation of our continents? How many the general revolutions which the globe has experienced that we inhabit! How often has it changed its form! On all ſides we diſcover veſtiges of its revolutions and cataſtrophes; our imagination, which cannot embrace the whole of them, is loſt in the gulph of time, before the date of hiſtory. He who firſt conceived that the ocean had changed its bed; that is to ſay, that formerly an order of things exiſted the reverſe of their preſent ſtate, imagined that he had advanced a highly bold opinion; our globe however may have experienced twenty ſimilar changes. The ſuppoſition of one alone explains nothing. We trample in ſecurity on the wreck of, poſſibly, a dozen of former worlds; yet ſhudder if nature vary the leaſt from her general plan.

† The ſhocks were ſo violent that men on the level plain were thrown down by them. Trees, ſupported by their trunks, bent even to the earth and touched it with their tops. Numbers were torn up by the roots, and others broken ſhort to the ground.

traverſed

traverſed by a prolongation of the Appennines, which, deſcribing a ſpecies of arch, terminate at Cape *Dell Armi*, oppoſite to Taormina in Sicily, and fronting the Neptunian mountains, which, notwithſtanding the channel which ſeparates them, may be looked upon as a continuance of the ſame chain, being of ſimilar nature, and running apparently in the ſame direction. Below the gulph of *Sant Euphemia* a ridge of the Appennines leaves the principal chain, extends almoſt at right angles in a weſtern direction, forms the vaſt promontory terminated by Capes *Zambrone* and *Vaticano*, and encloſes the gulph of *Sant Euphemia*. Another ridge proceeds in a ſimilar direction below the immenſe mount *Aſpramot*, and ends at the point of land called *Pezzo*, which jetting out oppoſite to Meſſina, incloſes on one ſide the narrow channel called *El Faro*. The ſort of baſon formed by theſe mountains is what is called the plain of Calabria, or of Monte Leone, and moſt commonly *The Plain* alone. This name cauſes a falſe idea, for the ſoil incloſed within this ſpace is neither even nor horizontal, as its title ſeems to indicate, but of unequal ſurface, and is traverſed by vallies and deep ravines. Poſſibly its deſignation may be given it in contradiſtinction to the lofty mountains by which it is incloſed. The ſurface is a gentle ſlope from the foot of the mountains which run from north to ſouth to the ſea-ſhore, where it ends in a low beach of a circular ſhape, the radius inwards, making the gulph of *Palma*. Within this ſpace, encloſed as I have deſcribed by three ridges of mountains, is it that the efforts of nature were moſt violent; this is the unfortunate ſoil which exhibits nothing but the ruins of the towns which formerly ſtood there; here it is that all the inhabitants ſeemed doomed to inevitable death; this therefore is that part of Calabria which I have moſt particularly to deſcribe.

The Appennines, after running through Italy, and in their whole courſe exhibiting nothing but calcareous mountains, here raiſe their heads aloft, and ſhew the naked granite and ſlaty ſtone which are exhibited to view in them alone, and form the extremity of this long chain. Theſe ſubſtances, which one would look upon as primitive in compariſon to the formation of all others, and lower than which they are almoſt uniformly ſituated, ſeem to preſent an immoveable baſe; and the mountains which they conſtitute fixing their roots in the centre of the globe, ought to be exempt from every viciſſitude; nevertheleſs, at their baſe was it that the moſt violent ſhocks were felt, nor were they themſelves free from ſuch convulſive motions as deſtroyed whatſoever was found at their feet.

The whole of the Appennines which overlook the plain, the ſummits or elevated groupes of ſome of which bear the diſtinctive names of *Monte Jego*, *Monte Sagra*, *Monte Caulone*, *Monte Æſop*, *Aſpramonte*, &c. is formed almoſt entirely of a hard and ſolid granite, compoſed of three ſubſtances, quartz, white feltſpar, and black mica. It is almoſt the only kind of ſtone the fragments of which are found at the foot of mountains, it is the only ſtone that is carried away by the torrents, and ſuch buildings on the plain as are compoſed of ſolid materials are conſtructed of theſe alone *. On ſome maſſes of this granite, on the back of ſome mountains and on certain ſummits, are adherent depoſits of calcareous ſtone, which look as if the remnants of larger maſſes, diminiſhed by time and rain. On ſome ſummits, alſo, *roche de corne* is found, and ſlaty

* Materials for building are exceedingly rare throughout all this part of Calabria. The houſes of the wealthy, and the churches, are built of ſtones carried along by the torrents; the caſes for the windows and doors of granite hewn in the mountains, conſequently very dear on account of the labour and expence of carriage to other places. The houſes and incloſures of the poor are made of clay, mixed with ſand and ſtraw, ſhaped into bricks and dried in the ſun. This dearth of materials for building will prevent a change of the ſite of ſeveral towns which would be much better placed a few miles from their former poſition, but the inhabitants refuſe to go to a diſtance, expecting to find in the wreck of their ancient habitations materials wherewith to conſtruct new dwellings.

ſchoerle (hornblend); fragments thereof are met with in the ruins of *Terra nova*, *Oppido*, and *Santa Chriſtina*. Theſe mountains are very ſteep, their ſummits bare, and many of them inacceſſible. They wear that appearance of age and degradation ſo commonly obſerved in mountains of the ſame deſcription: at their baſe, which is prolonged, have been ſucceſſively depoſited, to a very great depth, layers of quartzy ſand, galena, grey and white clay, and grains of feltſpar and mica proceeding from the decompoſition of the granite; the whole mingled with ſhells, and marine fragments. This maſs of matters, which have no connection with each other, and are without conſiſtence, appears to be a depoſit of the ſea, which driven by the weſtern wind beat againſt the foot of theſe mountains at a period much anterior to the preſent order of things, frittered off certain particles from the rock, and brought with it from its undulating motion ſome others from diſtances very remote.

This depoſit, at firſt horizontal, from north to ſouth and inclined from eaſt to weſt, as appears by the direction of the ſtrata afterwards received a new ſurface, either owing to currents of the ſea itſelf, or torrents from the mountains, and was formed into the ſucceſſion of hills, valleys, and plains, which, reclining on each other, terminate in a low ſhore on the margin of the ſea. The progreſs and the ſpoils of vegetation, and other cauſes with which I am unacquainted, have clothed this moveable baſe with a ſtratum of vegetable earth, argillaceous, black, or reddiſh, very ſtrong, very tenacious, and from two to four or five feet in thickneſs. This kind of outward bark gives a degree of ſolidity to the ſoil which is additionally bound together by the numerous roots of trees growing on its ſurface. Theſe roots penetrate to a great depth in ſearch of that humidity always contained in the lower part of the ſand.

This part of Calabria is watered by ſtreams from the upper mountains, well repleniſhed in winter and ſpring, and which after rain or the thawing of ſnow precipitate themſelves in torrents through the plain. Then do they bear away before them whatever they meet in their way, and when once they have made themſelves a furrow through the vegetable earth, they eaſily work a paſſage in a ſoil which can make no reſiſtance. Thus they make ravines of an extreme depth, at times ſix hundred feet, but the ſides always remain ſteep and almoſt perpendicular, on account of the ſuperior ſtratum of earth teſſilated by the roots of trees, preventing the maſs beneath from forming a ſloping bank. The whole country therefore is cut in furrows, and gorges of great or ſmaller depth and width, in which ſmall rivers run whoſe tributary waters form the two rivers *Metramo* and Petrazzo. Theſe fall into the ſea at a ſhort diſtance from each other, flowing through the lower part of the plain, of which they continually increaſe the extent by the depoſits they form at their mouth. Their banks, which are exceedingly fertile, and are ſuſceptible of irrigation, are yet not the beſt cultivated part of this beautiful country; they are uninhabitable from the bad quality of the air.

This change effected by water has produced two conſequences. In the firſt place it has formed a vaſt number of gorges and valleys, which have parcelled out and divided the ancient ſoil. Some of theſe valleys are ſuſceptible of cultivation; others ſtill are infertile, owing to their being covered by the floods of each ſucceeding year with a new depoſit of ſand, gravel, and different dilapidations of the upper ground. Almoſt all of them are increaſed by very lofty eſcarpments reſembling walls; ſome of them, having acquired a degree of ſlope, are covered with trees which add to their ſolidity; none however have inclination ſufficient to ſuſtain their load on a baſe proportionate to the height. Such parts of the ancient plain as have not been affected by the torrents, remain above theſe valleys and form flats, the elevation of which is uniformly the ſame, the dimenſions various; conſtantly are they interſected by the ravines I have deſcribed.

Some

Some of theſe flats, perfectly inſulated, reſemble thoſe calcareous mountains with flat tops which are frequently found in plains, the ſtrata in which correſponded with thoſe of the reſt in their vicinity. Nature might, by a violent motion of its waves in the body of waters which form the ſea, have anciently effected the ſame operation on calcareous maſſes, then much ſofter than what they are at preſent, as now before our eyes on the ſandy plains of Calabria.

This part of Calabria of which I have afforded a ſlight ſketch is by much the richeſt, not only from the extreme fertility of its ſoil, but from the great variety of its productions *. It is likewiſe the moſt peopled. An immenſe number of cities, towns, and villages are ſpread over its ſurface: many of them were ſituated on the ſlopes at the foot of the great chain, ſome on thoſe flat elevations which the torrents had reſpected, and which I have before deſcribed; others again on ſmall inclined plains, which have a view of the ſea at conſiderable diſtance. There are but two maritime towns, Palmi and Baynara. The inhabitants generally ſelected elevated ſituations, in order to have the advantage of a more healthy, a more pleaſant ſituation, and a more extended proſpect. Many of theſe towns, however, that they might not be too far from the water which flowed into the vallies, were eſtabliſhed near the eſcarpment on the brink of the ravines. This ſituation was the cauſe of the ſingular circumſtance which accompanied their ruin.

The maſs of the branch of the Appennines, which, as I have noticed, extend at a right angle and form a promontory terminated by Capes Zambrone and Vaticano, as well as its baſe is granite, but not always naked. It is entirely bare on the eſcarpments which line the coaſt beween Capes Zambrone and Vaticano; there it is in enormous maſſes, in which I have never been able to diſcover either ſtrata or ſymmetrical order. This granite is exceedingly hard; its granite and component parts are the ſame as thoſe of the mountains which occupy the bottom of the plain. On them are viſible large parallelopipedal ſtairs, produced by a confuſed cryſtallization occaſioned by ſome ſort of precipitation †.

This promontory, which I ſhall call Tropæa, on account of the town built below it between the two capes, draws back from its baſe towards its ſummit, and preſents four ſmall plains prolonged from one cape to the other in terraces, like the ſeats of an amphitheatre, and ſeparated by ſteep ſlopes. Here you diſtinguiſh the gradation of the matter of which the body of the mountain is compoſed. Solid granite forms the firſt ter-

* It is impoſſible to form an adequate idea of the aſtoniſhing fertility of Calabria, particularly of that part called *The Plain*. The fields, covered with olive-trees of larger growth than any ſeen elſewhere, are yet productive of grain. Vines load with their branches the trees on which they climb, yet leſſen not their crops. The country, from the immenſe number of trees with which it is covered, reſembles a vaſt foreſt, and yet produces grain ſufficient for its conſumption. All things grow there: and nature ſeems to anticipate the wiſhes of the huſbandman. There is never a ſufficiency of hands to gather the whole of the olives which finally fall and rot at the bottom of the trees which bore them, in the months of February and March. Crouds of foreigners, principally Sicilians, come there to help to gather them, and ſhare the profits with the grower. Oil is their chief article of exportation, of which it may truly be ſaid a river ſtreams annually from Calabria. In other parts the principal production is ſilk, of which a great quantity is made there. In every quarter their wines are good and plenteous. The people, in ſhort, would be the happieſt on earth if . . . but it forms no part of my plan to criticiſe either the government or the individuals who hold great poſſeſſions in Calabria.

† This granite is worked; it ſerves to make ſteps for ſtairs, ciſterns, and other ſimilar works. I believe that a part of the columns of granite which are ſeen at Naples and various towns of Sicily, and which are termed oriental granite, notwithſtanding they are not red, were taken from theſe rocks. On examining them, I found in an eſcarpment on the ſea-ſhore below the village of Paryhilia an ancient quarry, in which are a number of large handſome columns already cut, others begun, and fragments of a number broken in the operation of cutting them.

race;

race *; above it is a great thickneſs of decompounded granite, the grains of which have loſt their adherence, and fall aſunder with the ſlighteſt ſhock. In this ſpecies of rotten rock the waters have opened deep ravines, particularly in Cape Zimbrone, in which they have made frightful cuts through the whole depth of the mountain; the ſides of which however, although ſteep, have yet a trifle of inclination, being deſtitute of a ſolid cruſt at top to keep the earth together and prevent its giving way. Upon the granite in a ſtate of decompoſition is a layer of fine quartzy white ſand, ſeveral hundred feet in thickneſs, in which I found a number of marine bodies, particularly a quantity of ſuperb *echinometres*. Finally, the loftieſt part of this mountain, that which forms its ſummit, is a white calcareous ſtone in horizontal beds. This flattened ſummit is the ſingle, calcareous, inſulated mountain called *Poro*, on which are the ruins of an ancient caſtle: it forms a ſort of unequal plain, which is prolonged as far as the great chain paſſing below Monte Leone. But this lofty flat does not partake of the fertility of the plains or ſlopes which it commands.

The town of Tropea, on the ſea-ſhore towards the baſe of the promontory, is ſituated on a rock of granite projecting a little into the ſea, which it commands. The exterior part of this granite is coated with a ſandy calcareous rock, feebly concreted and full of marine bodies. A ſimilar calcareous concretion adheres to the granite in ſome other parts of the coaſt.

The ſide of this mountain towards the ſouth, in that part adjoining which *Nicotera* is ſituated, expoſes a naked maſs of large grained granite of a ſuperb quality, the blocks of which are very large, and fit for the moſt beautiful works. In the upper part the granite is decompounded, but is leſs friable than that of the neighbourhood of Tropea. It is croſſed by veins of micaceous feltſpar; one part of which reſembles the *petunze de Saint Yrie* in the Limouſin, and the other changes into clay.

As you examine this ſide of the mountain towards *Miletto* and *Vallelunga*; the ſolid granite appears to bury itſelf in the earth ſo as to leave only that part expoſed which is in a ſtate of decompoſition, a quartzy ſand, and white micaceous clay, rather unctuous and ductile, which poſſibly may alſo be the reſult of a decompoſition of feltſpar. Theſe matters form the ſlopes, leaning againſt the mountain, which the waters eaſily penetrate, opening for themſelves profound ravines and valleys. The town of Miletto was built on a ſlope of this deſcription.

On the oppoſite ſide of this mountain, that is to ſay, towards its top on the northern ſide from the river *Angitola* to Cape Zambrone, the maſs appears to be a mixture of granite

* In midſt of the fertile plain which forms the firſt terrace of the mountain of Tropea is the little borough of Paryhelia, remarkable on account of the induſtry of its inhabitants, whoſe character affords a perfect contraſt with that of other Calabrians. They are all of them addicted to foreign commerce. They ſet off in the ſpring, and ſpread themſelves over Lombardy, France, Spain, and Germany. They traffic not in the productions of their country, which furniſhes but few objects of exportation, but in merchandize of eaſy tranſport, ſuch as eſſences, ſilks, cotton counterpanes of exquiſite workmanſhip, &c. &c. which they purchaſe in other parts of Calabria; and bring back in return ſome objects of luxury, which they afterwards diffuſe through the province. The village is entirely deſerted by the men during the ſummer. The harveſt is gathered by the women and old men, and in the autumn they return with their gains to ſow their lands. Almoſt all of them ſpeak French; their conduct is milder, and their manner leſs ſavage than thoſe of their neighbours. They enjoy thoſe little comforts of life which are unknown to their fellow-countrymen. Among them it is remarkable that, although the women never travel, they yet acquire a degree of poliſh from the excurſions of the men to foreign countries. The men are above the common ſize, the women pretty, and very fair complexioned. Some of them have blue eyes. The beauty of the women of this village is cited throughout the neighbourhood. Another circumſtance, as ſingular as the preceding is, that the example of *Paryhelia* has no effect on the town of *Tropea*, diſtant from it no more than half a league; the whole of the induſtrious habits of Calabria being confined to that village.

and foliated rock, in druſes, and of *roche de corne*, in which prevails blackiſh micaceous rock, containing an immenſe quantity of garnets confuſedly cryſtallized, and ſometimes blended with pyrites *. Theſe garnets by trituration have formed a moſt beautiful reddiſh ſand, met with on the ſhores of the ſea, and which is almoſt excluſively formed of theſe fragments. In the upper part of the mountain, above the rocks which I have juſt deſcribed, there are micaceous, calcareous ſtones, and laſtly, calcareous ſtones formed from ſhells.

The town of Pizzo, at the back of theſe black, ſchiſtous, and granitic mountains, is built on a rock which projects into the ſea, and is enveloped exteriorly by an agglutination of calcareous and quartzy ſand, mixed with marine bodies: among others I met with ſome very beautiful *echinites*. This ſort of concretion forming a maſs of but little ſolidity, is nearly ſimilar to that of *Tropea*; it adheres to other ſchiſtous rocks of the ſame mountain. It covers itſelf by the concurrence of humidity with a kind of blackiſh cruſt or moſs, which deceived the eye of Sir William Hamilton, who miſtook it for volcanic *ſtalactites* or *tophus*. I can ſafely affirm, from the moſt ſtudious examination and moſt diligent reſearch, that in all this part of Calabria there is not the ſlighteſt veſtige of any productions of fire.

To purſue our examination of the mountains which incloſe the plain. It remains for me to determine the nature of the mountainous maſs, the limits of which is oppoſite to Meſſina, and which bounds the coaſt from *Pizzo* to *Bagnara*, following the roundings of the promontory, which by its contraction forms the Faro, and oppoſite to which, on the north-weſtern ſide, the town of Scylla is built. The maſs or kernel is here ſtill granite, ſheathed with foliating and micaceous rock, ſurmounted in ſome ſpots by calcareous and very tender ſandy ſtones.

Micaceous and argillaceous ſchiſt predominate in the mountains which environ the rich fields of Reggio †, which ſtretch to Cape Spartivento. Theſe ſchiſts are croſſed by ruins of quartz and metal. An attempt there was made to work a lead mine, which was argentiferous, but the plan was afterwards abandoned.

The oppoſite ſide of the Appennines, that is to ſay, the part which fronts the eaſt, preſents a leſs bare, a leſs arid aſpect than the weſt. The inclinations are not ſo abrupt, and the tops are more covered with wood. The mountains appear of ſlighter elevation on account of the neighbourhood of mountains of a ſecondary rank, and hills which extend to the ſea, to which the centre of the chain is much nearer than on the oppoſite ſide ‡. This ſide preſents a ſucceſſion of varied ſites, and moſt charming and picturesque

* This foliated and micaceous rock containing garnets, proves that its conſtituent particles were petrified ſimultaneouſly, and precipitated at the ſame inſtant from the fluid which held them in ſolution. In ſome the bottom of the ſtone reſembles a paſte of the nature of garnets, which envelopes the mica; in others, the garnet poſſeſſes its particular cryſtallized form, and is buried in the mica by which it is ſurrounded.

† Reggio, at the extremity of Calabria, is moſt delightfully ſituated. The mountains which ſurround it are covered with ſhrubs uſed in France for the ornament of gardens, and which, almoſt continually in bloom, have a moſt charming effect. Such are the roſe laurels, the *geniſta odoriſera*, &c. The plains, the vallies are ſurpriſingly fertile, a faculty they owe to the abundance of water with which they are nouriſhed. In no part can you dig two or three feet in the ſands of the river without meeting with ſoft water. This water deſcends from the mountains, filters through the ſoil, and thus keeps up a freſhneſs and humidity which renders vegetation in ſuch a climate abundant. Numerous clumps of *agrumi* adorn the fields of Reggio, affording delightful walks; and furniſhing from their fruit, and the eſſences extracted from them, a conſiderable commerce. In Italy, the word *agrumi* is uſed as a generic term to expreſs collectively all trees of the ſpecies of orange, lemon, citron, bergamot, &c. &c.

‡ One is tempted to imagine that in ancient times the motion of the ſea from eaſt to weſt was more conſiderable and continual than the reverſe, ſince on one ſide of the chain it has accumulated at the foot of the mountains a great quantity of ſand and detritation from the loftier ſummits, whence what I have deſcribed as *the Plain* was formed; whereas on the eaſtern ſide it ſtill continues to waſh the foot of the hills without an accumulation of any ſediment whatever.

landſcapes.

landſcapes. The fields are aſtoniſhingly fertile; there are but few plains, but the vallies are delightful; the hills are covered with mulberry and fruit trees, while olives, leſs abundant than on the weſtern ſide, leave to balance their deficiency a verdure much more lively, with ſuperior charms. The centre or kernel of the ſecondary mountains and hills is ſolid; ſchiſt and calcareous ſtone abound in them, and they are veined with metal.

The part of the chain of the Appennines which runs along the iſthmus, or contraction made by the gulphs of St. Euphemia and Squillaci, is likewiſe compoſed of granite, foliating rock, and ſchiſt, covered in ſome parts by calcareous ſtone; it is only beyond *Nicaſtro* and *Catanzaro* that all theſe ſubſtances are entirely enveloped with the ſame calcareous ſtone, which is ſubſtituted for them throughout the whole of the upper part of this chain, until you come to the lava and ejections from Veſuvius, and the volcanic productions of the Campagna di Roma and Tuſcany, where you ſee them again forced into view, from conſiderable depth, by the action of volcanic fire.

From this general examination reſults, that almoſt in every part Calabria has granite for its baſe; that the focus * of the earthquake was beneath this baſe; or at leaſt that the momentum which occaſioned theſe violent oſcillations of the ſurface, acted beneath theſe ſolid maſſes; that there is not the veſtige of a volcano in any part of this province that I could find; no matter which had undergone any change from the action of ſubterraneous fires, neither in the mountains, nor among the ſtones in the beds of the torrents; that throughout this province neither lava, *tophus*, nor ſcoriæ of any deſcription is to be found. In the interior of the plain I ſaw no more than two ſprings of cold hepatic water; but near St. Euphemia, beyond the iſthmus, there is a plentiful ſpring of hot ſulphureous water: neither of theſe, however, can I aſcribe to fire, ſince the ſpontaneous decompoſition of pyrites is of itſelf ſufficient to account for their production. I lay particular ſtreſs on this aſſumption, as it tends to invalidate the opinion of ſuch as imagine a ſubterraneous fire to exiſt below this province: did it exiſt, it would ſhew itſelf leſs equivocally. Neither in the plain, nor in the mountains by which it is ſurrounded, or at leaſt thoſe which form the ſquare, are there either mines, ſulphureous matter, or bitumen, notwithſtanding the aſſertions of hiſtorians. In almoſt the whole of this boundary the granite is viſible, and the ſoil is compoſed of nothing but clay, ſand, and pebbles.

Notwithſtanding there was an almoſt uninterrupted ſucceſſion of earthquakes from the 5th February to the following month of Auguſt, three diſtinct epochs may be aſſigned them, as far as they regard the places under which they acted with greateſt violence, and their conſequences. The firſt compriſes the ſhocks from the 5th to the 7th February excluſive; the ſecond that of the 7th February, at one in the afternoon, and all thoſe by which that was ſucceeded up to the 28th March; and, laſtly, all poſterior to thoſe.

The ſhock ſo injurious to the plain of Calabria, that which buried more than twenty thouſand inhabitants beneath the ruins of their towns, happened on the 5th of February, at half an hour after noon. It laſted but two minutes, ſo ſhort a ſpace of time did it require to overturn every thing, and ſpread a general deſtruction. I cannot give a better deſcription of its effect than by ſuppoſing a number of cubes of ſand, moiſtened and faſhioned by the hand, being placed at ſhort diſtances from each other on a table; then by ſtriking

* I make uſe of the words *focus* and CENTRE OF EXPLOSION, not becauſe I imagine the primitive cauſe of the earthquakes to have exiſted below Calabria, but merely to aſſiſt me in explaining the effects, until I deduce from the phenomena themſelves the cauſe of the agitation of the ſoil of this unfortunate province.

the bottom of the table repeatedly, and violently ſhaking it in an horizontal line by one of its corners, an idea may be formed of the violent and various motion by which the earth was then agitated. At the ſame inſtant were experienced ſudden leaps, undulations in every direction, oſcillations, and violent whirlings. No building could reſiſt this complication of motion. The towns, and all the houſes diſperſed over the country, were levelled in an inſtant. The foundations appeared to be diſgorged by the earth which contained them. Stones were ground and triturated with violence againſt each other, and the mortar in which they were pounded was reduced itſelf to duſt. This earthquake, the moſt violent of any that ever was known, occurred without the prelude of any ſlighter ſhocks, without any notice whatever, happening as ſudden as the exploſion of a mine. Some however pretend that a muffled interior noiſe was heard almoſt at the ſame inſtant. But who can place reliance on the account of thoſe expoſed to the rigour of ſuch a ſhocking calamity? Terror, deſire of ſafety, theſe were the firſt ſenſations of ſuch as were in houſes. Again in an inſtant, and the craſh of falling buildings, and the duſt raiſed by their ruin, would hinder them from all ſeeing or hearing whatſoever, nor even leave them power of reflection. To ſave themſelves was a mere mechanical movement of ſuch as eſcaped; the reſt did not recover to a ſenſe of their misfortune before the ſhock had ceaſed. I ſhall not attempt to picture the horror, ſilence, and deſpair which ſucceeded this terrible cataſtrophe. The firſt emotion among the ſurvivors would be joy to find themſelves alive; the ſecond deſolation. Let us turn from this ſcene of horror, and leave to others the detail of individual calamity, and particular circumſtances, whilſt we confine ourſelves to phyſical effects.

The moſt violent upward ſhocks were felt in the territories of Opido and Santa Criſtina. There alſo took place the moſt violent convulſions; which circumſtance has cauſed the idea that theſe towns were placed over the focus of exploſion. But unlike others I ſhall not ſay that the effect of the earthquakes, the ruin they occaſioned, were in inverſe ratio to their diſtance from the centre, or that the greater the diſtance thence the leſs the devaſtation. Suppoſing this, the towns of *Sederno*, *Groteria*, and *Girace*, which are not farther from *Opido* or *Santa Criſtina* than *Roſamo* or *Poliſtena*, would have experienced injury alike; and the villages *Mamola*, *Agnano*, and *Canolo*, which are much nearer, would have been levelled with the ground. But all theſe places were on eminences on the other ſide of the chain, and notwithſtanding they ſuffered greatly from the ſhock of the 5th February, they were not either overturned or ruined; their fate can be in no reſpect compared with that of the towns of the plain. I ſhall maintain with more reaſon, that all within the compaſs of the mountains before deſcribed was entirely deſtroyed; and that the buildings on ſolid foundations above the plain, or on the ridges of the mountains which ſurround it, were far from being equally mal-treated.

The general effect of the earthquake on the ſandy, argillaceous ſoil of the plain of Calabria, which, as I have deſcribed, is deſtitute of conſiſtence, was that of augmenting its denſity by diminiſhing its volume, that is to ſay, of heaping it; of eſtabliſhing ſlopes wherever there were eſcarpments or rapid declivities; of diſconnecting all thoſe maſſes which either had not ſufficient baſes for their bulks, or which were only ſupported by lateral adherence; and of filling the interior cavities. Hence it follows that in almoſt the whole length of the chain, the ſoil which adhered to the granite of the baſes of the mountains *Caulone*, *Eſope*, *Sagra*, and *Aſpramonte*, ſlid over the ſolid nut, the inclination of which is ſteep, and deſcended ſomewhat lower, leaving, almoſt uninterruptedly, from St. George to beyond St. Chriſtina, (taking the baſe, a diſtance of from nine to ten miles,) a chaſm between the ſolid nut and the ſandy ſoil. Many lands ſlipping thus

were

were carried to a diſtance from their former poſition, covering others entirely *. Whole fields ſunk conſiderably below their former level, without others adjoining them undergoing the ſame change, thus forming a ſpecies of baſon, as was the caſe above *Caſal Nuovo*; other fields aſſumed an inclination. Chaſms and fiſſures traverſed the flats and ſlopes in every direction, but generally parallel to the courſe of the gorges in their neighbourhood. In the immenſe olive grounds between Poliſtena and Sinopolo theſe fiſſures are viſible at every ſtep. But on the brink of eſcarpments was it generally that the greateſt damage and ruin occurred. Conſiderable portions of land, covered with vineyards and olives, ſeparated themſelves upon loſing their lateral adheſion, and fell in ſingle maſſes to the bottom of the valleys, deſcribing arcs of a circle, the radius of which was the height of the eſcarpment from its baſe, in the ſame manner as a book ſtanding on its edge which falls flat. In ſuch caſes the upper part of the ſoil upon which the trees grew were thrown to a diſtance from their former ſite, and remained in a vertical poſture. I have ſeen trees which continued to puſh out leaves, and which did not even appear to have ſuffered, notwithſtanding they had remained for a year in a poſition ſo contrary to that perpendicularity they conſtantly affect. In others, enormous maſſes loſing alſo their lateral adheſion, fell on inferior ſlopes, and deſcended thence into the valley; to the impulſe received from their fall was ſuperadded the further movement given to their courſe by other lands which preſſed upon their rear, thus impelling them to a conſiderable diſtance; ſtill they preſerved their form and poſition, and after affording the ſpectacle of a moving mountain, eſtabliſhed themſelves finally in the valleys. It is here eſſential to remark, that the ſandy ſoil of the plain, not forming a maſs of connected particles, was a bad propagator of motion, ſo that the lower part would receive more impulſe than what it would tranſmit to the ſurface. This is the cauſe why the bottom in moſt caſes gave way firſt, and the baſe running away, almoſt ſimilar to a fluid, from the upper part to which it ſerved as a ſupport, this latter ſunk down, detached in very large maſſes, from the lands to which it was formerly connected. The ſurface of the ſoil being ſtrongly bound by the interwoven roots of trees, and the thickneſs and tenacity of the bed of vegetable and argillaceous earth, it is nowiſe ſingular that many of theſe lands ſhould be preſerved almoſt entire, notwithſtanding the falls, violent ſhocks, and long courſes they made. But let us follow the effects of the ſhock of the 5th of February.

Where the upper part of the eſcarpment gave way firſt, or where the ſurface of the earth ſeparated into fragments, which broke away as the baſe crumbled from beneath, diſorder was at its height; trees half interred preſented indifferently their roots or branches; and where in ſuch caſes the wrecks of houſes were mingled with thoſe of the mountain, no ſemblance remained of what had exiſted before, and the whole formed a picture of chaos.

At times it happened, that a ſurface, which by its fall and the inclination of the declivity formed below it, received a ſtrong impulſe of projection, provided it was oppoſed in its courſe by any ſmall intervening hills, it covered them, nor ſtopt till it had paſt beyond. Where a ſimilar ſurface encountered the oppoſite declivity, it ſtruck

* Accidents of this kind have given riſe to ſingular diſputes. It has been requiſite to decide to whom the lands belonged which buried thoſe of others. The earthquakes of Calabria have cauſed the greateſt revolutions in the fortunes of individuals. Many of thoſe whoſe whole property conſiſted of moveables, debts, ready money, &c. have been reduced to beggary, however great their former wealth; others have acceded to inheritances who never could have nouriſhed ſuch hopes, and which would not have been theirs but for the entire deſtruction of the moſt numerous families. Almoſt all the rich were loſers, and gainers almoſt all the poor. The latter over and above their plunder charged what they pleaſed for their labour, which could not be diſpenſed with by thoſe who required huts to dwell in, or wanted aſſiſtance to redeem what was covered by the ruins, and their charge was in conſequence exorbitant.

againſt

againſt it with violence, and raiſed itſelf up a little, and formed a ſpecies of cradle. When the oppoſite ſides of a valley fell away at the ſame time, their wrecks met together and their ſhock raiſed little hills in the center of the ſpace they covered. The moſt common effect, that, of which a number of examples is ſeen in the territories of Oppido and Saint Chriſtina, and on the banks of deep vallies or gorges, in which run the rivers *Maidi*, *Birbo*, and *Tricucio*, is, where the inferior baſe having given way, the upper grounds have fallen perpendicularly and ſucceſſively in great trenches, or parallel bands, each aſſuming its reſpective poſition, ſo as to reſemble the benches of an amphitheatre; the loweſt bench or terrace is ſometimes four hundred feet below its firſt poſition. This among others is the caſe of a vineyard ſituated on the border of the river Tricucio, near a new formed lake, it is in this manner divided into four parts, which hang in terraces one above the other; the loweſt part of the terrace fell from a height of four hundred feet.

The trees and vines that were growing on lands removed in maſs received no injury; even men upon them, ſome on trees, others tilling the land, were thus tranſported in a curious manner for ſeveral miles, without ſuffering any harm; many ſuch examples have been quoted to me which are authenticated in different relations.

The conſequences of the crumbling to pieces of theſe elevations have been, a ſtraitening of the valleys, or the entire covering of them in various places where oppoſite banks have met, ſo even as to obſtruct the current of water and form a great number of lakes; the filling up of gorges and rendering even the ſurface of interſected lands; tranſportation of the inheritances of certain individuals on to the poſſeſſions of others, an interruption of communication, and a new face afforded to the whole country.

The other phenomena produced by the firſt ſhock, and originating therein were, a ſuſpenſion of the courſe of rivers, the inſtantaneous drying up of ſome, and their after increaſe. The explanation of theſe facts is eaſily given, they were owing to the ſudden percuſſions upwards and downwards which the earth then experienced; and to the center of the plain being raiſed and the ſlope of the currents of the river being increaſed which cauſed them to run with greater rapidity. The upper waters retained by a kind of dam were kept in ſtagnation; but, the cauſe removed, a level was re-eſtabliſhed, and the ſtreams ſomewhat augmented in volume ran muddy. In many places water ſpouted from the earth to the height of ſeveral feet, carrying with it mud and ſand. All ſprings were more abundant. Some ſulphureous and hepatic waters made their appearance for ſome days and afterwards diſappeared. Theſe phenomena are all the conſequence of the accumulation. All ſprings have an interior reſervoir; many ſubterranean cavities are full of ſtagnant waters which acquire a taſte and ſmell of hepar, either owing to putrefaction, or the decompoſition of pyrites; if by the contraction of the ſoil or the fall of upper bodies the capacity of the reſervoirs become leſs, they ſpring forward with a force proportionate to the lateral compreſſion, and bear away with them the bodies with which they are mingled. This increaſe of ſprings is a further cauſe of the increaſed volume of rivers. Nobody has been able to tell me preciſely whether the hepatic waters which ran at the time, were cold or hot. Thoſe which I have ſeen and which mix now with the waters of *Vacari*, a river which runs by *Poliſtena*, and with thoſe of the river Tricuccio near Oppido, are cold. The phenomena of water ſpouting is peculiar to the firſt ſhock; on the other ſhocks taking place it did not occur on account of the ſoil having acquired already the greateſt denſity and conſtriction of which it was capable.

Moreover in the whole of the country I travelled through, notwithſtanding the moſt diligent reſearch, I found no indications or ſymptoms of a diſengagement nor ſubterraneous currents of vapour, or any veſtiges of either fire or flame. Every circumſtance

of this description related in many accounts has been contradicted by the testimony of the very persons referred to by the authors. It is but an easy task to make a peasant, still full of terror, and who has no interest in the circumstances respecting which he is questioned, reply as might be wished. It is easy enough to make them answer *yes* to whatever they are asked. They are uniformly but half informed men; who have added to their relations the most singular and most contradictory circumstances, from their desire to attribute to the late earthquakes of Calabria all the phenomena of which they have an idea, from knowing what had occurred on similar occasions. Moreover the major part have had some petty system to support, and have been desirous of arranging circumstances so as to make them square with what they had traced the outlines of before.

Let us take a rapid view of the various towns destroyed by the second shock, and examine the chief circumstances attendant on their destruction.

Rosarno a small borough on a sandy hill, a short distance from the river *Metramo*, was overturned. The prince's castle, the churches, and houses exhibit nothing but heaps of ruins; some low houses excepted, all of which are violently shook, and some bare walls which stand by themselves, the rest is a heap of ruins.

The course of the river *Metramo* was for an instant suspended near the bridge of Rosarno; but shortly after its waters flowed in greater abundance than before and were disturbed. It is even pretended that it was entirely dry * for the space of some minutes.

Polistena, a tolerably large, rich and populous town, was built on two sandy hills divided by a river which had a somewhat deep bed. This town is absolutely levelled †, not a single house remained, not a single piece of wall ‡. Many houses were precipitated into the river, the earth of the banks of which had given way. The thick and very solid walls of the Dominican monastery are fallen in large blocks. The hill on the right,

* The plain on the right side of *Metramo* near the bridge is condemned to sterility from the inundation of a torrent which leaves on it every year a fresh coat of sand and mud, making it a marsh, the atmosphere about which is infected. A trifling expence is all that is requisite to form a bed for this torrent, and restrain its course. The government however disdains to trouble itself on *such paltry affairs of administration.*

† I had seen Reggio and Messina, and mourned the fate of those two towns; I saw not in them a single habitable house, not one but would require rebuilding from its base, yet the skeletons of these two towns remained, the greater part of the walls standing by themselves. What these towns formerly were is visible. Messina still at a distance presents an imperfect image of its ancient splendour. Every inhabitant might distinguish either his house or the ground on which it stood. I had seen *Tropea* and *Nicotera*, in which few houses remained but had received great damage, and in which many were wholly fallen in ruins. I framed no idea of greater misfortunes than those which had befallen these towns; but when I saw the ruins of *Polistena*, the first town of the *Plain* which presented itself, when I surveyed heaps of stones which were destitute of form, and gave no conception of its having ever been a town; when I beheld that nothing had escaped destruction but all was level with the dust; I experienced such a mixed sensation of terror, compassion, and horror, as for sometime deprived me of my faculties. This spectacle however was but the prelude to still more wretched scenes on the rest of my excursion.

The impression made upon me by the sight of Messina was totally different. I was less struck by its ruins than the solitude and silence which reigned within its walls. One is affected by a melancholy terror, a mournful sadness, in traversing a large city and visiting its different quarters, to meet with no soul living to hear no human voice, no sound but the quivering of doors or shutters suspended to fragments of walls, and acted upon by the wind. The mind is then rather overcome by the weight of its feelings than terrified; the catastrophe seems directed against the human species, and the ruins which are seen appear to be no other than the effect of depopulation. Such would be the picture of a town where a pestilence had raged.

The whole population of Messina took refuge in barracks of wood without the city.

‡ This town buried one half of its inhabitants beneath its ruins. Such as survived this fearful catastrophe dwell in barracks placed on a flat which overlooks the ancient town and on which it is in contemplation that the new town shall be built.

near

near the Capuchin convent, is conſiderably ſunk. There are a number of fiſſures in the ſoil and its depreſſion continues to the foot of the mountain a league from the town. In the whole of the neighbourhood of the town are numerous fiſſures.

Saint Georges, a ſmall town a league and a half diſtant from Poliſtena ſuffered ſcarcely at all from the ſhock of the 5th February, on account of its being built on an eminence, ſituated on a rock, adhering to the great chain of the Appennines. It afterwards received conſiderable damage from the earthquakes of 7th February and 28th of March.

Cinco Frondi, a pretty borough, half a league diſtant from Poliſtena, in a very fertile plain, was entirely ruined. An ancient tower of Mooriſh work, ſquare, ſituated in the middle of the town, and large enough to ſerve as a caſtle and dwelling for the lord of the manor, was exceedingly ſolid as much on account of the great thickneſs of its walls, as the quality of its cement, which had bound the works together in ſuch a manner as to make the whole as firm as a rock; it was overturned, and in its fall broke into a number of large blocks of aſtoniſhing volume and hardneſs. One of theſe blocks contains an entire ſtaircaſe. Here it ſeems as if the earth had diſgorged from its bowels the very foundations of the different buildings.

In going from *Poliſtena* to *Caſal Nuovo*, two leagues diſtance you paſs the Vaccari, a river which has dug its bed in a ſoil entirely of ſand; there is a ſource of cold ſulphureous water, which empties itſelf into the river, a ſhort diſtance from *Poliſtena;* this ſource was very abundant on the 5th of February and following days; the ſmell of it alſo was very ſtrong, but by degrees it reſumed its natural ſtate. In the country through which this river flows, and on its banks, ſeveral ſprings ſpouted up water on the firſt ſhock.

Caſal Nuovo, a pretty town, ſituated in a pleaſant plain at the foot of the mountain, with wide and ſtraight ſtreets, and low houſes*, was entirely levelled, ſo as that one ſtone remained not upon another. This town was built after the earthquakes of 1638, which devaſtated Calabria. The utmoſt precautions were uſed to prevent a ruin ſimilar to that we witneſſed. But notwithſtanding its ſtreets were very wide, and its houſes very low, nearly half the population was cruſhed beneath the ruins. The Marchioneſs of *Gerace*, the lady of the manor, and all about her were the victims of this ſhock.

The whole of the ſoil of the plain which ſurrounds *Caſal Nuovo* is ſunk. This depreſſion is particularly apparent above the borough at the foot of the mountains. All the ſloping lands which leaned againſt this mountain have ſlided lower down; leaving between the moving ground, and the ſolid, fiſſures ſeveral feet in width which extend from three to four miles. Certain portions of thoſe lands thus ſlipping down deſcended into the plains and overwhelmed others at conſiderable diſtance from their former ſite.

In going from *Caſal Nuovo* to *Santa Chriſtina*, within a ſpace of ſix leagues one traverſes a country interſected in a moſt extraordinary manner, by gorges, ravines, and deep vallies; a country, which has conſequently been the theatre of great revolutions. Not a ſtep can you make in this part without diſcerning either fiſſures in the ſoil or places whence the ſoil has fallen away.

Terra Nova, this was a ſmall town ſituated on an elevated flat, on three ſides of which were deep gorges, which gave it the appearance of being placed on a high mountain. But this elevated flat was at the extremity of a plain which extended to the foot of the

* The appearance of Caſal Nuovo was delightful when ſeen from a diſtance. At the corner of every houſe a tree was planted and a vine which gave ſhade; ſo that the ſtreets had the appearance of the covered allies of a garden.

mountain and is of extreme fertility *. This town enjoyed an excellent air, a beautiful proſpect and the advantage of excellent water. The poſition which ſecured it theſe advantages occaſioned it to experience a deſtruction, reflection on which alone muſt make one ſhudder. A part of the ſoil gave way, and in its courſe to the middle of the river *Maro* carried with it the houſes upon it. Their ruins, ſtones, and woodwork mingled with the ſand which formed the body of the mountain, cover a conſiderable part of the valley commanded from the town. On the oppoſite ſide the mountain by a perpendicular fiſſure from top to bottom became divided, and one part, ſeparated from the other, fell in one block on its ſide in the ſame manner as a book opened in the middle which has one part upright on its back while the other falls to the table. That which was the upper part, on which were houſes and trees, remains in a vertical poſition; of the houſes it will eaſily be conjectured there is not a veſtige remaining; but the trees have received little injury. At the inſtant of the formation of this fiſſure, and the ſeparation of the mountain all the houſes placed immediately above, were perpendicularly precipitated down more than three hundred feet, and covered the bottom of this chaſm with their ruins. Nevertheleſs the whole of the inhabitants did not periſh, the difference of their gravitation cauſed the materials to reach the ground before the men, ſo that many were ſaved from being buried or cruſhed to death in the ruins. Some fell directly on their feet, and immediately walked firmly over the heaped wreck, others were interred up to their thighs or breaſt, and were releaſed with a little aſſiſtance. A third part of the town in crumbling to pieces filled with its ruins a little valley which was nearly in the center, and in which were a fountain and ſome gardens. Never did any country experience a greater overthrow than that on which this unfortunate town was ſituated; never was there ſeen deſtruction accompanied by more ſingular and varied circumſtances. The ſite of not a ſingle houſe can be recognized; the ſurface is wholly changed, nor by what remains is there a poſſibility of divining what formerly this town had been. The ſoil in every part gave way, the whole was overthrown. That which was lofty is abaſed, that which was low appears, from the diminution of the height of its contiguous prominences, to have been elevated. For there has been no actual elevation as ſome pretend. A ſtone well in the convent of the Auguſtins appears to have been driven out of the earth, and at preſent reſembles a ſmall tower eight or nine feet in height a little inclined: This effect was produced by the conſolidation and conſequent ſinking of the ſandy ſoil in which the well was dug.

The ruins of the town, with thoſe of the oppoſite hill, have ſtopped the current of the ſmall river *Soli* on one ſide, as well as that of a plenteous ſpring which emptied itſelf into the bottom of the oppoſite gorge, and have thus formed two lakes, whoſe ſtagnant waters are the more impetuous from their being the receptacle of dead bodies and wrecks of all deſcriptions †.

In all the environs on the edges of the valleys there has been conſiderable ſhrinkings. The whole plain above the town is interſected by numerous crevices and fiſſures. A

*In no part have I ever beheld ſuch large olive trees; they reſemble timber trees, and planted in quincunx, they form moſt ſuperb woods as dark and as ſhady as a foreſt of oaks. The ground is cleanſed and ſtamped round the foot of each tree in order to form a circular hollow ring into which the olives fall; the quantity is ſo conſiderable, that they are actually broomed into heaps.

† Unleſs art or nature dry up theſe lakes they will complete by their peſtiferous exhalations the deſtruction of the ſmall population which has ſurvived the concomitance of ſo many cauſes of mortality. The atmoſphere at preſent is ſo loaded, ſo much infected, ſo moiſt, that in the month of February there were as many inſects and flies in the air as are wont to be in ſummer on the ſurface of ſtagnant pools.

conſiderable diſtance muſt be travelled over, ere a proper ſite can be found for the new town or rather hamlet, which the ſmall number of the remaining inhabitants will have to eſtabliſh *.

A large plantation of olive trees belonging to the Celeſtin monks on a level with the ground ſuffered materially. One part of it was overturned in the gorge in which the river Soli flows, and the trees, ſome of which were not rooted from the earth, have taken moſt ſingular poſitions, where they continue growing. Another part ſunk ſome fathoms down; and all the remainder is threatened with ruin from the number of fiſſures and cracks which interſect it; and for the ſpace of a mile, not a foot of ground is there remaining which can be regarded as firm and ſolid †.

The village of *Moluquello* or *Moloquiello* was ſituated oppoſite to *Terra Nova* and on the ſame level, on a ſmall platform a mile in length and two hundred paces broad, compreſſed between the rivers *Soli* and *Maro* which ran in deep vallies at their feet. One part of the village fell towards the right, another towards the left, and of the ground on which it was ſituated no more remains than a ridge ſo narrow that you cannot walk upon.

Radicina, a pretty ſmall town in the plain at ſome diſtance from the gorges, was entirely levelled, with the exception of a ſmall ſquare houſe of one ſtory in the center of the town, which kept firm, and indeed has hardly ſuffered at all without my being able to aſſign a reaſon.

I ſhall ſay nothing of all the ſmall villages the ruins of which lay ſcattered about the country, as they preſent nothing intereſting.

Oppido, an epiſcopal ſee and pretty conſiderable town, was placed on the ſummit of an inſulated mountain, or rather on an elevated flat level with the neigbouring *Plain*, of which it ſeems formerly to have made a part, but from which it had been entirely diſjoined by the torrents, which had formed all around it gorges of an extraordinary depth. Acceſs to the town was exceedingly difficult on account of the rapid acclivity and eſcarpments about it. Notwithſtanding this, trees and ſhrubs had got hold on the ſides and enveloped the mountain with a girth of wood, the interwoven roots of which gave a kind of ſolidity to the maſs, which of itſelf had none: for it is compoſed alone of ſand, clay, and marine fragments, altogether ſimilar to the compound of the oppoſite hills.

The town was entirely levelled, not a ſingle piece of wall remaining erect. A part of the extremity of the flat on which a ſtrong caſtle was ſituated, a kind of citadel, with four baſtions, fell away, and drew with it two of the baſtions into the gorge below. This is the only ſubtraction the mountain experienced; the reſt remained entire, notwith-

* The ancient population of *Terra Nova* was two thouſand ſouls. It is at preſent reduced to leſs than four hundred; rather more than fourteen hundred were buried in the ruins or cruſhed to death, and the reſt have been taken off by putrid fevers. This ſmall number of unfortunate people have built themſelves barracks on a plain half a mile below the ſite of the former town; the damp and unſolid nature of the ground in this part will not allow of their ever building houſes here.

† I lodged at *Terra Nova* in the barrack belonging to the Celeſtin monks, one only of all of whom eſcaped; it is in the midſt of the plantation of olive trees. I had noticed the evening before how very deficient of firmneſs was the ground; my imagination was full of all I had ſeen; I was picturing to myſelf the ſenſations of the inhabitants of this town at the inſtant of the ſhock; when I felt my bed moved by a pretty ſtrong earthquake. I got up precipitately and with ſome inquietude, but on perceiving all was ſilent I conjectured that this ſhock though very ſtrong was nothing comparable to thoſe which had before been felt at the inſtant of the various cataſtrophe, ſeeing it occaſioned not the ſlighteſt alarm to thoſe who were at reſt in the ſelf-ſame barrack. I again retired to my bed, but it will readily be conceived not to reſt during the remainder of the night.

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ſtanding its eſcarpments, in all likelihood ſuſtained by the ſtrong girth afforded by the roots of the numerous trees and ſhrubs by which it was encircled *.

If the ſoil of Oppido reſiſted in ſome meaſure the violence of the ſhocks, this was not the caſe with the oppoſite banks; the crumbling away of the earth was there immenſe. The fall of the ground, and conſiderable portions of the hill, filled the valleys and formed lakes, by which the town is now ſurrounded. Theſe lakes which ſurround the mountain will, by degrees, be filled by the accumulation of ſand brought by the torrents and the wreck of the higher grounds †. Already is there one which has been filled in this manner.

It is not, however, in the immediate neighbourhood of the town that the greateſt deVaſtation has been experienced; but, a mile or two miles from it, in the deep vallies formed by the rivers *Tricucio*, *Birbo*, and *Boſcanio*. There all thoſe accidents which I noticed in the beginning of this Diſſertation occurred. There ſand and clay ran like torrents of lava or as if they were carried away by water. In other places, conſiderable portions of mountains ran for ſeveral miles in their way to the vallies, without falling in pieces, or even changing their ſhape. Entire fields, covered with vines and olives, were precipitated into the bottoms without changing the horizontal poſition of their ſurface; others were ſomewhat inclined, while others again were placed vertically, &c. &c. The fall of oppoſite eſcarpments, and their after rencounter have formed dams of ſeveral miles in thickneſs, ſtopped the courſe of ſtreams, and produced great lakes, which the government is employed in attempting to dry. For this purpoſe it will be neceſſary that deep canals ſhould be cut the length of three or four miles through the rubbiſh, which will take up a length of time, and prove extremely expenſive; both the labour and expence of which might be ſaved, if the government but reflected that nature, in a few years, would fill up theſe lakes, as ſhe has done many others; that an infected atmoſphere is much leſs to be apprehended in ſuch places at diſtance from habitations, and that the expence could be much better employed in the neighbourhood of Terra Nova, or other parts of Calabria.

Below *Oppido*, at a diſtance of three miles, was ſituated the ſmall village of *Caſtellace*, built on the brink of an eſcarpment, which gave way, and fell into the valley. The ruins

* Who would imagine that the inhabitants of Oppido after the deſtruction of their town and the various diſaſters to which it had been ſubject, ſhould yet be partial to that unfortunate ſpot. Government pointed out a ſite for a new town. It choſe a place called *Latuba*, a league diſtant from the former. The greater part of the inhabitants object to going thither. They conſider as a ſort of tyranny the attempt to take them away from their former place of abode to oblige them to inhabit a moiſt and unhealthy plain which contains no materials for building. They ſay in favour of their inſulated flat, that it has proved its ſolidity by reſiſting the moſt violent ſhocks without flinching in the leaſt; that the ſtones and wood work of the houſes in ruins will ſerve them to build others; that its air is excellent; that they are nearer to their poſſeſſions, and that, collectively, theſe different advantages more than compenſate for the inconvenience of having no water on the flat; and aſſume that being accuſtomed to fetch it from the bottom of the valleys, uſe has made this labour of no conſideration. A ſchiſm has hence aroſe among the remains of this population, part have complied with the wiſhes of government and are gone to *Tuba*; while the reſt remain on the ruins of Oppido. I was ſurrounded by them on my going to viſit that town. They ſeemed to have forgot the misfortunes occaſioned by the earthquake, their minds being wholly engroſſed by the injury which they pretended had been done them. They particularly complained bitterly of being deprived of a maſs which had been accuſtomed to be ſaid in a hut ſet apart for the purpoſe from the commencement of their diſaſters.

† Before I reached the mountain of Oppido I could not conceive how it was poſſible to approach it; I was ſeparated from it by the place where a lake had been, which was filled. This baſon, full of a fine ſand on which the river runs, ſeems a vaſt gulph of mud which the eye contemplates with fear, and which is a hundred paces over. My guide informed me we had to paſs it in order to reach the old town. I riſked a ſtep or two with ſome apprehenſion but made confident by the experiment, and finding that what appeared to me a grey and ſoftiſh mud was firm, I croſſed this lake of ſand through a depth of water which reached my knee and took a little crooked path, by which I was enabled to climb among the buſhes up an eſcarpment which appeared to me inacceſſible.

of ſome houſes which remain on the mountain, are the only indications of its poſition, or former exiſtence. The village of Coſſoletto has experienced nearly a ſimilar fate.

The town of Santa Criſtina, ſituated almoſt at the foot of the great mountain Aſpramonte, on a ſharp ſandy hill, ſurrounded by gorges and deep valleys, was circumſtanced nearly in the ſame manner as Terra nova, and experienced ſimilar deſtruction. The houſes with part of the hill were precipitated from top to bottom. A number of chinks and fiſſures interſect it from its ſummit to its baſe, ſo as to give room to apprehend that the remainder will yet give way. The whole ſurface of the country is changed. The territory of Santa Criſtina, cut in a like manner by a number of gorges and valleys accompanied by eſcarpments, experienced the ſame fate as that of *Oppido*.

The territories of *Terra nova*, Oppido, and Santa Criſtina, are thoſe on which the earthquakes occaſioned the greateſt damage, and produced the moſt extraordinary reſults. This has made it conceived that the *focus* of the ſhocks of the 5th of February was beneath this part of the plain. I ſhall not deny that the concuſſion may have been more violent there than elſewhere; but the nature of the ſoil, and the gorges by which it is interſected, very much contributed to the deſtruction of the towns, and greatly aſſiſted in occaſioning the diſorder obſerved in their neighbourhood.

Following the circuit made by the baſe of *Aspramonte*, we come to the ſmall town of Sinopoli, and the borough of Saint Euphemia, both built at the foot of the mountain, and both deſtroyed, yet not levelled with the ground.

Bagnara, a pretty conſiderable town on the coaſt, built on an eminence, with an eſcarpment towards the ſea, was entirely levelled. The houſes were precipitated one upon another in ſuch manner, that with difficulty can it be diſtinguiſhed it had ever been a town.

Seminara, another town on the coaſt, was deſtroyed, but not levelled entirely, like the laſt.

Palma, a well-peopled trading town, is only a heap of ruins.

Without enlarging the liſt, what I have ſaid will be ſufficient to demonſtrate that the ſingular circumſtances attendant on the earthquake were the natural effect of a violent ſhock on a ſandy ground previouſly opened and torn by torrents. It is furthermore viſible that on a ſpace ſix leagues in length by ſix in breadth, lying between the river Mutramo, the mountains and the ſea, not a ſingle edifice remained entire; one may even ſtate that ſcarcely one ſtone was left upon another, and that there was not in this whole ſpace a ſingle acre of ground but what had either changed its figure, its poſition, or undergone material revolution.

While the plain was given up to total deſtruction, buildings in its neighbourhood, founded on ſolid baſes on eminences, eſcaped from equal devaſtation. They felt the ſhock ſeverely, and many houſes were damaged. But if this ſhock of the 5th of February had been the only one, had it not been followed by thoſe which ſucceeded it, almoſt uninterruptedly for ſix months, none of the upper towns would have been rendered uninhabitable. It ſeemed as if the power which in every direction had ſhaken the plain had not been ſufficiently ſtrong to raiſe a greater weight, ſuch as that of the mountains by which it is incloſed. Hence *Nicotera*, *Tropea*, and *Montedoone*, towns built on the mountain of Cape Vaticano, or on its prolongation with the boroughs and villages dependant on them, ſuffered ſcarcely at all. Their overthrow was reſerved for a more violent exertion of force, ſuch as ſhook the bodies even of theſe mountains themſelves, on the 18th of March following. The borough of *St. George*, only four miles from Potiſtena, as we have before remarked, but placed on a mountain, was before then but little injured. The boroughs and villages ſituated on the ridge of the mountain oppoſite

ſite to Meſſina, and the ſmall town of Scylla itſelf, were not entirely deſtroyed. On all theſe mountains the ſhocks were leſs violent, leſs momentary; the movements were not ſo quick, ſo irregular, nor even the upward percuſſions ſimilar.

Reggio and the neighbouring places were rendered uninhabitable, but not levelled. It was not even the firſt ſhock which damaged them the moſt.

On the oppoſite ſide of the Appennines, towards the eaſt, the earthquake of the 5th February was very ſenſibly felt; all the towns in this quarter ſuffered either more or leſs, ſome planks gave way, ſteeples and ſeveral churches were thrown down, houſes were damaged, but very few were wholly overturned. The number of perſons who periſhed was inconſiderable.

Every where, except on the *Plain*, the ſhock was preceded by ſome ſlight oſcillations and a ſubterranean noiſe, which all agree proceeded from the ſouth-weſt.

The earthquakes which ſucceeded the fatal epoch of the 5th of February, although ſenſibly felt in the plain, occaſioned there no further injury. No more houſes remained to be thrown down, and the ground was conſolidated by aſſuming ſlopes; and moreover a greater denſity occaſioned by the ſhocks. All acclivities had become leſs by an extenſion of their baſes. The earth therefore was ſhook in vain in that unhappy country; it took no further part in this dreadful tragedy.

The ſhock which happened in the night of the 5th of February increaſed the damage done to Meſſina, Reggio, and other towns already affected by the firſt earthquake. It was fatal to the inhabitants of Scylla, owing to the fall of a conſiderable portion of the mountain into the ſea, which raiſed the waves, and gave them a violent undulation. The billows broke with force upon the ſtrand, and the lower part of the town, where the Prince of Sinopoli, the lord of the manor, accompanied by all his attendants and a great number of inhabitants, had taken refuge; theſe billows threw themſelves forward on the ſhore, and on retiring drew back with them all that were there *.

The earthquake of the 7th of February, at half paſt one in the afternoon, was very violent; but it did not exerciſe its greateſt violence in ſimilar places to the former; it ſeemed as if the focus or centre of exploſion had aſcended ſix or ſeven leagues higher up towards the north, and placed itſelf beneath the territory of Soriano and Pizzoni. This earthquake effected the deſtruction of the borough of Soriano, and the dependant villages, of a large Benedictine convent, very ſolidly conſtructed, ſubſequently to the earthquakes of 1659, and of the Chartreux convent, called San Bruno, or Stephano del Boſco; all of them places which had been reſpected by the firſt ſhock. It concluded with overturning *Lauvana*, *Galatro*, *Arena*, and other neighbouring diſtricts. Of *Mileto* it made a heap of ruins, and perfectly laid waſte the territory of a circle, the diameter of which might be from two to three leagues.

The territories of *Soriano*, *Arena*, and *Soretto*, the ſoil of which was ſandy, and interſected by ravines, experienced likewiſe great mutation of ſurface from the fall of its eminences, and diſplacement of its lands. The mixture of ſand, clay, and decompoſed granite, of which the hills are compounded below the town of Miletto, gave way in ſeveral places, and apparently ran like lava.

It is highly worthy of remark, that the earthquake of the 7th of February was felt the moſt at Meſſina and Soriano, places very diſtant from each other; whilſt it was moſtly

* This circumſtance, attendant on the earthquake, which happened on the night of the 5th of February, has been the moſt variouſly related, and has occaſioned the moſt comments of any, many falſities being added to the true account. It is well authenticated that the waves carried away twelve hundred perſons, who had taken refuge on the ſhore, in the number of whom was Count Sinopoli. But that the water was hot, that the bottom of the ſea burnt! theſe are particulars neither true nor likely.

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leſs violent in all the intermediate country, throughout which however a conſiderable noiſe was heard.

The 28th of March was another fatal epoch which carried ruin and deſolation into countries, the inhabitants of which were already half recovered from their apprehenſion of danger from earthquakes; for not having received material damage from the firſt ſhocks, they had flattered themſelves with being without the pale of this terrible ſcourge. The centre of exploſion changed for a third time, and again aſcended ſeven or eight leagues higher towards the north, taking its ſeat beneath the mountains which occupy the iſthmus that unites the upper part of this province to the lower, between the gulphs of Saint Euphemia and Squillaci. The moſt violent upward ſhocks, indications of the ſpot where the ſtrongeſt efforts were made, were principally below the mountains of *Girafalco*, about the centre of the contraction. On this occaſion nature diſplayed a much greater force than ſhe had done in the preceding ſhocks; ſhe lifted up and ſhook the very bodies of the mountains, which cover the whole ſpace where this earthquake exerciſed its ravages. In conſequence the extenſion of its momentum was to much greater diſtance. Calabria citra felt its effects, and even received ſome injury. All the provinces of the kingdom of Naples were ſenſible of its ſhock. It ravaged indifferently both ſides of the chain; lofty ſites or lowly ſpots were alike ſubject to its devaſtation; nothing ſeemed exempt. By drawing two diagonal lines, one from *Cape Vaticano* to *Cape Colonne*, the other from *Cape Suvero* to *Cape Stillo*, you will within theſe four points have the extent within which the ſhock was terrible, and the deſtruction greateſt, and the point of intermiſſion of the two lines will be nearly that of the centre of exploſion *.

This earthquake was preceded by a very loud ſubterraneous noiſe ſimilar to thunder, which was renewed at every ſhock. The motions were very complicated; ſome upwards, as if leaps of the earth; afterwards ſucceeded violent whirlings, which were terminated by undulations.

It would be uſeleſs to give a liſt of all the towns and boroughs which received conſiderable injury on this occaſion. It will be enough to obſerve that all the upper part of this province ſuffered materially, that many towns were either almoſt wholly overthrown, or rendered uninhabitable. But notwithſtanding the violence of the concuſſions of the 28th of March, the misfortunes ſuffered by theſe countries were in nowiſe comparable to thoſe endured by the plain on the 5th of February. Here there were no towns levelled with their foundations; the ruin of ſeveral very badly built, ſuch as *Pizzo*, was prepared by the previous ſhocks; and nevertheleſs the chief part of the walls are ſtanding. Moreover the towns of *Nicotera*, *Tropea*, Monteleone, Squillace, *Nicaſtro*, *Catanzaro*, *San Severino*, and *Cotrone*, are capable of being rebuilt. Few buildings have been totally ruined, and ſome are only a little ſhook. The common people have already entered the lower part of theſe towns; and as ſoon as the great houſes ſhall be reduced to one ſtory only above the ground-floor, as ordained by government, and they ſhall be a little repaired, they will become habitable. It will however require a length of time to free the mind of the inhabitants from the terror excited by the earthquakes, particularly the ſhock of the 28th of March, before which they felt themſelves in ſome meaſure ſecure; and to engage the rich to leave their wooden huts, in order to inhabit ſtone buildings again. As one is accuſtomed to judge of all objects by compariſon, the fate of Calabria Ultra affects one but little, having witneſſed the calamities of the plains, and overgone its ruins.

* I repeat here that I uſe the expreſſion of the *centre of exploſion*, not to indicate the cauſe, but only to explain the effect.

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The different effects of the earthquake of the 5th of February and that of the 28th of March, can only be attributed to the nature of the ſoils. In the *Plain* the baſe itſelf gave way, not a houſe there was built on a firm foundation. The motion of the concuſſions was more irregular, as modified by being communicated through the medium of a ſoil yielding more or leſs to the force which convulſed it, and conſequently tranſmitting it unequally. In the mountains, on the contrary, notwithſtanding the agitation of the ſurface was pretty conſiderable, they were leſs deſtructive. The rocks on which the towns were built communicated to them a more regular motion, being better conductors; the ſoil after each oſcillation reſumed its poſition, and the edifices preſerved their fixity. So a glaſs full of water will bear great vibration without a drop being ſpilt, while it is emptied by the leaſt irregular ſhake.

The earthquake of the 28th of March increaſed the diſaſters of Meſſina, where it acted with violence; it added new damage to Reggio, and overturned a number of houſes in the ſmall town of Santa Agatha de Regio and the neighbouring places. Nevertheleſs it was but little felt in the *Plain*, which lays between the two extremities of Calabria, where, as I have before obſerved, the ſhocks were exceedingly rough. It ſeemed as if the actuating force paſſed freely, as in an open canal, under the plain, to ſtrike alternately the two moſt diſtant points.

The earth continued convulſed throughout the whole of 1783. I myſelf even felt ſeveral ſhocks in the months of February and March 1784. But none of theſe can be compared to the three which form different epochs, nor even to thoſe which immediately ſucceeded them; neither were they followed by any accidents worthy of mention.

The ſea ſhared little of the convulſion to which the continent was ſubject in the earthquakes of 1783. The maſs of waters experienced no general actuation of flux or oſcillation, nor roſe above their ordinary level. The waves, which beat againſt the coaſt of Scylla, and afterwards covered the point of the Faro of Meſſina, were raiſed by a partial cauſe. The fall of the mountain, which I have before noticed, elevated the water on the ſpot, which received a new undulating motion, ſuch as conſtantly follows ſimilar cauſes. The ſhore was covered three different times, and every thing upon them was borne away by the reflux of the waves. The undulation extended from the point of Sicily to the other ſide of *Cape Roſucalmo*, continuing along the coaſt towards the ſouth, but gradually diminiſhing its riſe from that to which it was ſwollen at Scylla. This elevation of the waves immediately ſucceeded the fall of the mountain. If it had been the conſequence of a general motion of the ſea, if the waves had been acted upon from a ſimilar cauſe with that experienced at Cadiz, on the occurrence of the earthquake at Liſbon, they would have had a different impulſe, and the effect would have been remarked to extend much farther. A violent fluctuation would have been noticed at Meſſina, provided the ſea had partook of the ſhock to which the earth was ſubject. The mole, which is even with the water, to which veſſels are moored, whoſe heads project above it, would have been covered, and the veſſels wrecked. The ſame effect would have taken place at *Palma*, which is higher up than Scylla, as well as upon the beach of Tropea; but in no part of this coaſt did the ſea exceed its bounds. What moreover proves that the inundation at Scylla proceeded from the cauſe aſcribed, is the circumſtance of the ſea not having riſen in a ſmall creek behind the ſhore, on which the waters roſe with ſuch violence, owing to its not being in the direction of the undulation.

Notwithſtanding I made numerous enquiries, I could not gather from any of the accounts afforded me any indication of the electric phenomena mentioned in different relations, nor of any of the ſparks, or diſengagement of the electric fluid, to which the naturaliſts of Naples ſo poſitively aſcribe the origin of the earthquakes.

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The ſtate of the atmoſphere was not conſtantly the ſame pending the diſaſter. While tempeſts and rain ſeemed at Meſſina to have conſpired with the earthquakes to effect its ruin, the interior of Calabria enjoyed fine weather. In the morning of that dreadful day there fell a little rain in the *Plain*; but during the remainder of it the weather was ſerene. The months of February and March were tolerably fine, and even warm. There were ſome ſtorms and rain, but none other than are common at that ſeaſon. The fine weather which reigned after the cataſtrophe of the 5th of February was even of great advantage to the interior of Calabria; but for that the unfortunate remains of the population, without ſhelter, or means of procuring any, for a length of time, owing to the want of boards and workmen, would have died of want and the intemperance of the ſeaſon. On the 28th of March, in the upper part of Calabria, the weather was not bad, nor was the earthquake attended by any ſtorm; there were only ſome ſhowers. From this remark it follows, that the atmoſphere is not ſo ſtrictly connected with the interior movements of the earth as has been inceſſantly maintained; and it is highly poſſible that the tempeſts experienced in the canal of Meſſina, and on other parts of the coaſt, are attributable to other cauſes than the earthquake.

I aſk therefore permiſſion now to ſeek in facts alone the cauſe of the earthquakes in Calabria, and, laying all ſyſtem aſide, to examine into what may poſſibly have given riſe to the almoſt total deſtruction of this beautiful province.

The motive force appears to have reſided beneath Calabria itſelf, ſince the ſea partook nothing of the oſcillation or convulſions of the continent. This force ſeems alſo to have advanced progreſſively beneath the chain of the Appennines, in a direction from ſouth to north; but what power in nature is there capable of producing ſimilar effects? I put electricity out of queſtion, which cannot for a year together accumulate in a country ſurrounded with water, in which every thing concurs to place this fluid in equilibrium. But fire remains. This element acting immediately upon ſolid bodies, ſerves but to dilate them; in which caſe their expanſion is progreſſive, and produces not ſuch violent and inſtantaneous motions. When fire, however, acts upon fluids, ſuch as air and water, it gives them an aſtoniſhing expanſion; and we know that on ſuch occaſions the elaſticity they acquire is capable of ſurmounting the moſt obſtinate reſiſtance. Theſe appear the only means which nature can employ to occaſion ſuch effects. But throughout Calabria there are no volcanos. Nothing announces interior inflammation, or any fire concealed, either in the centre of the mountains or under their baſe; and ſuch fire could not exiſt without ſome external ſymptoms. Dilated vapours, airs, rarified by a heat always active, would have eſcaped through ſome of the fiſſures or crevices in the ſoil, and have produced currents. Fire and flame would likewiſe have found paſſage through the ſame vents. A paſſage once obtained, compreſſion would have ceaſed; the motive force experiencing no longer any reſiſtance would have become null, and the earthquakes would not have been of ſuch long duration; none of theſe phenomena occurred; we muſt therefore give up the ſuppoſition of an inflammation acting immediately from beneath Calabria. Let us now conſider if by having recourſe to a fire foreign to this province, and acting upon it only as an occaſional cauſe, we may be able to explain the phenomena which accompanied theſe ſhocks. Let us, for example, aſſume Etna in Sicily; and let us ſuppoſe large cavities beneath the mountains of Calabria, a ſuppoſition which cannot be refuſed. There can be no doubt but there are immenſe ſubterranean cavities, ſince Mount Etna, being accumulated by its exploſions, muſt have left in the interior of the earth vacancies proportionate to its enormous maſs.

The autumn of 1782 and the winter of 1783 were very rainy. Interior waters, increaſed by thoſe from the ſurface, may have run into the focus of Etna; they would in conſequence be converted into very expanſive vapour, and ſtrike againſt every obſtacle

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to their dilatation. Provided theſe ſhould have met with channels conducting them to the cavities below Calabria, they would have been capable of occaſioning all thoſe convulſions of which I have given a deſcription.

Let us ſuppoſe now, in order to make myſelf more eaſily underſtood, that theſe cavities with their channels of communication imperfectly repreſent a retort laid on its ſide, the neck of which ſhould be the length of the coaſt of Sicily, the ſhoulder beneath Meſſina, and the body below Calabria. The vapour riſing impetuouſly, and driving before it the air with which theſe cavities were previouſly filled, would firſt ſtrike againſt the ſhoulder of the retort, and afterwards turn to engulph itſelf in the body. The force of impulſion would act firſt againſt the bottom of the vault, and afterwards by re-percuſſion againſt its ſummit, whence it would be revolved and reflected on all ſides, ſo as to produce the moſt complicated and ſingular movements. The thinneſt parts of the retort will be thoſe which would tremble moſt at the ſhock of the vapours, and moſt readily yield to their impulſe. But this water, rarefied by fire, muſt condenſe by expoſure to the cold which reigns in theſe ſubterranean places, and the action of its accidental elaſticity ceaſe as promptly as its firſt efforts were inſtantaneous and violent. The vibration of the external ſurfaces ceaſes ſuddenly, without its being known what can have become of the force which has occaſioned ſuch diſorder. It only recommences when the fire reſumes activity enough to produce ſudden vapours anew, when the ſame conſequences reſult as long and as often as water falls on the burning focus.

But if the firſt cavity be divided from a hollow of ſimilar deſcription, merely by a wall or ſlender partition, and if this ſeparating part be broken by the elaſtic vapours ſtriking againſt it, the former cavity will then only ſerve as a channel of communication, and all the impulſe will then be directed againſt the bottom and ſides of the ſecond. The focus of the ſhocks will appear to have changed its ſeat, and the oſcillations, in the ſpace before acted upon with greateſt violence by the earthquakes, will be but feeble.

Let us now apply theſe neceſſary phenomena, and ſuppoſe one or more cavities placed below Calabria, the ſeat of the earthquakes. The plain, which indiſputably was the thinneſt part of the vault, is that which would firſt evince the impreſſion it received. The town of Meſſina, built on a low ſhore, experienced a concuſſion which did not affect the houſes built on eminences. The motive power ceaſed as ſuddenly as it acted violently and all at once. When on the 7th of February and 28th of March the focus appeared to have changed its poſition, the *Plain* ſuffered ſcarce at all. The ſubterraneous noiſe which preceded and accompanied the ſhocks ſeemed conſtantly to proceed from the ſouth-weſt, in the direction of Meſſina. It reſembled thunder roaring under vaults. Thus without having any direct proofs to produce in ſupport of my theory, it appears to me to meet all circumſtances, and explain ſimply and naturally all the phenomena that occurred.

If then Etna, as I have ſaid, be the cauſe of the earthquakes, I may further affirm that for a long time it has been preparing the misfortunes of Calabria, by opening gradually a paſſage along the coaſt of Sicily to the foot of the Neptunian mountains. For during the earthquakes of 1780, which threatened Meſſina throughout the whole ſummer, pretty ſtrong ſhocks were felt all along the coaſt from Taormina to Faro. But near the village of Alli, and the river Niſi, which lie almoſt in the middle of this line, the concuſſions were ſo violent as to give room for apprehenſion that a volcano would open itſelf a paſſage. Each concuſſion reſembled the effort of a mine, which ſhould not have power to ſpring its object. It ſeems as though at that inſtant the volcano opened itſelf a free paſſage for the expanſion of its vapours, ſince in 1783 the vibration was almoſt null on that part of the coaſt of Sicily, while at the ſame time Meſſina buried beneath its ruins a part of its inhabitants.

TRAVELS IN SPAIN:

CONTAINING

A NEW, ACCURATE, AND COMPREHENSIVE VIEW

OF

THE PRESENT STATE OF THAT COUNTRY.

BY THE CHEVALIER DE BOURGOANNE.

[Tranſlated from the French of the Third Edition. Paris, 1803.]

ADVERTISEMENT PREFIXED TO THE THIRD EDITION.

THE abſence of the author, who is at preſent in Sweden, has not prevented his paying attention to this new edition. He has been furniſhed with information, has made additions, and rectified errors which had occurred in the former editions; ſo that the preſent has at leaſt one advantage over the preceding, that of laying before the reader an account of the changes which Spain has undergone ſince 1797.

It is deemed expedient in this place to make three obſervations, which may probably be of utility.

1. That as rials are frequently mentioned in the work, and many calculations are made in them, it will be conſidered that the rial here meant is equal to five ſous of French money, ſo that by taking the quarter we ſhall have the value in franks *.

2. That as frequently as *hard* or *American* piaſters are ſpoken of, dollars are intended, which, according to the courſe of exchange, or value of ſilver, are worth from five franks to five franks eight ſous; but the *Spaniſh* piaſter, which is that of exchange, is an imaginary money, the value of which at par is about three livres fifteen ſous. Without regard to this diſtinction, much error may ariſe in computations.

3. The title of Don ſhould never be placed immediately before the ſirname, as is the caſe in many French and ſome Engliſh works which ſpeak of Spain. It precedes only the chriſtian name. Thus Don Franciſco de Saavedra ſhould be ſaid, and not Don Saavedra. When deſirous of noticing a Spaniard by his family name alone, he is called Monſ. de Saavedra, Monſ. de Cevallos. When a man employs the Don without a chriſtian name immediately ſucceeding, a Spaniard is uſed to conſider it either as a mark of ignorance, unpardonable in the inhabitants of a nation whoſe intercourſe with them is ſo continual; or what is worſe, as a mark of contempt.

PREFACE TO THE EDITION OF 1797.

FROM the prejudices which the reſt of Europe entertains with regard to Spain even at the preſent day, one is led to imagine that all the knowledge required reſpecting that country has been drawn from romance, or the ſuperannuated notions reſpecting it handed down in ancient memoirs; rather ſhould we conceive it, from our ignorance of it, to be ſituated at the exremity of Aſia, than at that of Europe.

* In the tranſlation the value is expreſſed in Engliſh money.

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The principal end of this work is to modernize theſe antique ideas, and to rectify theſe errors. Not but that within the ſpace of the laſt twenty years many Deſcriptions of Spain have been publiſhed. Many intereſting details, and much truth are to be met with in the Eſſays on Spain, by Peyron.

Three Engliſh travellers have written on Spain: *Twiſs*, whoſe work is of little celebrity; *Swinburne*, whoſe obſervations are famous for their juſtice and acuteneſs; and latterly *Townſhend*, who is ſomewhat reprehenſible for the precipitation of his deciſions, and his reliance on the credulity of his readers.

Chantereau, in 1792, publiſhed his *Lettres ſur Barcelone*, and has given a new edition of them; and although his ſtile be not the pureſt, notwithſtanding his having ſacrificed exact delineations to his inclination of diſplaying captivating pictures, his work may be read with ſome intereſt and utility.

As for the *Voyage de Figaro*, which, at the remonſtrance of the Spaniſh government, ten or twelve years ago was ſuppreſſed, and which ſince that time has been reprinted with emendations; I mention it for thoſe only who think that poignant ſallies are a compenſation for every other deficiency.

The author of the preſent work leaves to his two countrymen the merit of perpetual effuſions of livelineſs and malignity. Such as read travels merely for amuſement, or having their wonder excited, will ſcarcely chooſe this for their peruſal. In it the author has above all things ſought to be juſt and impartial. But juſtice and impartiality, although they ſometimes may aſtoniſh, ſeldom entertain.

The author of this work has perhaps no other advantage over his predeceſſors than what ariſes from his having ſojourned for a number of years, at different periods, in the country of which he gives the deſcription; from having had a long intercourſe with almoſt all claſſes of the Spaniſh nation, and having ſtudied with ſome attention its manners and its language.

In 1789 he publiſhed the reſult of his firſt remarks, after a reſidence of eight years. Since then he has made two journies into Spain; at one time ſpending more than a year in the country, charged with a miſſion of importance. On this occaſion he applied himſelf to obtain more recent and preciſe ideas of different objects. This edition differs therefore materially in many reſpects from the firſt, and preſents many objects not treated of in the former.

In 1789 the author, for certain reaſons, deemed it expedient to keep concealed. The ſame motives no longer prevailing, he now avows himſelf. He hopes that his work, far from loſing by this circumſtance, will poſſeſs an additional title to the confidence of his readers. Leſs under conſtraint in expreſſing his opinion than what he was ſeven years ago, he will now explain himſelf with that frankneſs which is the duty of every writer who ſeeks to eſtabliſh a claim to eſteem.

He who is deſirous to ſpeak of any nation without giving room for offence, and at the ſame time would abide by truth, has two rocks which he muſt avoid ſplitting upon; flattery, which can but be inſipid even to the object of adulation; and ſatire, which is as much repugnant to equity as to good nature. The author will endeavour to purſue a mean. Perhaps he may now be more fortunate than on his firſt appearance. On the one hand, readers ſtrangers to Spain imagined that gratitude had made a parafite of his pen; on the other, ſome Spaniards took umbrage at certain avowals which were dictated by truth. Emboldened by the innocence of his motives, he dares in this new edition to brave theſe double dangers, perſuaded that in endeavouring to conciliate all, he runs the riſk of pleaſing none.

The ſame courſe as he purſued in his firſt edition will be here followed. Entering Spain by Bayonne, he will proceed to Madrid, pauſing by the way at whatever may appear worthy of digreſſion. In the capital he will examine the different branches of adminiſtration, and thoſe matters in particular which may tend to develope the real manners of the Spaniſh nation. Thence he will advance to the ſouthern part of the kingdom. Returning to the capital, he will make ſome excurſions in the neighbourhood, particularly one into Arragon; re-entering France through the kingdoms of Valentia and Catalonia.

His object is to preſent a Picture, of which the Travels will ſimply be the outline. His Travels might have appeared incomplete; he has uſed his beſt endeavours that his Picture ſhould not be ſo.

THE PICTURE OF MODERN SPAIN.

CHAP. I.—*Carriages, inns, roads. Details relative to Biſcay; its liberties; its privileges; the patriotiſm of its inhabitants; Bilboa, St. Sebaſtian, Victoria, &c.*

IN the month of November 1777 I went firſt to Spain, as ſecretary of the French embaſſy, a few months after the formation of the new miniſtry of that power; and at a time when, to found its diſpoſition relative to the grand quarrel between North America and the mother country, was a matter of high importance.

Of the three roads * known from time immemorial, I fixed upon that of St. Jean de Luz. On arriving at Bayonne, inſtead of taking poſt horſes from Bayonne to Orogne, which is five leagues diſtant from the former, and two from the frontiers, I exchanged my carriage, as moſt travellers do, for a vehicle not very elegant, called by the Spaniards, *coche de colleras*, and which, till we are uſed to it, excites many alarming apprehenſions. This carriage is rather ſtrong than commodious, and drawn by ſix mules, to which the voice of the conductors ſerves both for ſpur and bridle. On ſeeing them faſtened to each other as well as to the ſhafts, with ſimple cords, and their ſtraggling manner of going, as if without any kind of guidance, in the crooked and frequently unbeaten roads of the peninſula †, the traveller imagines himſelf at once entirely abandoned to the care of Providence: but on the appearance of the leaſt danger, a ſingle word from the chief muleteer, called *el mayoral*, is ſufficient to govern and direct theſe docile animals. If their ardor abates, the *zagal*, who is his poſtillion, jumps from the ſhafts, where he is ſtationed as a centinel, animates them with his voice and whip, runs for ſome time by their ſide, and then returns to his poſt, where he remains until called by ſome ſimilar circumſtance to repeat his ſervices. This inceſſant vigilance of the two conductors ſoon

* It is well known there are three frequented roads leading from France to Spain; the one from St. Jean de Luz to Irun; another from St. Jean Pied de Port to Roncevaux; and the third from Boulon to Jonquiera. What however is not generally known, and what I only learned in 1795, from an engineer who had examined with care, and taken drawings of the different gorges and defiles of the Pyrenees, is, that from the Col de Bagnouls, which is the neareſt defile to the Mediterranean ſea, to the valley of Aran, near the ſources of the Garonne, there are ſeventy-five paſſages through the Pyrenees, of which eight-and-twenty are practicable for cavalry, and ſeven for carriages or artillery. One of theſe latter, and of the exiſtence of which no doubt can be entertained, is the Col des Orts, running parallel with that of Perthus, on the other ſide of Bellegarde; for, in 1792, the Spaniards, by this paſſage, entered St. Laurent de Cerdu, and there invaded two of our diſtricts.

† This is the appellation uſually given to Spain by the inhabitants, on account of its being ſurrounded by the ſea, except on the ſide next the Pyrenees. This term was, without doubt, adopted at the time that Portugal formed a part of the kingdom; ſince its diſunion, it is, as far as regards Spain, incorrect.

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relieves the traveller from his fears, who, notwithſtanding, remains aſtoniſhed that more accidents do not happen from ſo dangerous a manner of travelling. He reconciles himſelf, however, more eaſily to this than to the Spaniſh inns, which, for the moſt part, are entirely deſtitute of accommodation. Travellers are badly lodged and ſerved; and thoſe who wiſh for the leaſt tolerable repaſt, muſt themſelves apply to the butcher, baker, and grocer. In this reſpect, however, there has within theſe few years been a change perceptibly for the better. Before the adminiſtration of Mr. de Florida Blanca there were no public carriages in Spain, nor one road on which the traveller could go poſt otherwiſe than on horſeback; and if that be excepted which paſſes through Gallicia from Pontevedrā, almoſt to the Weſtern Ocean and turns to Corunna; another North of Caſtile running from Reynoſa to the ſea; thoſe of Navarre and Biſcay, the fruits of the patriotic efforts of their inhabitants, not more than ten leagues of tolerable road was to be met with at any time throughout all Spain. This miniſter, who poſſeſſed an almoſt unlimited authority, would have rendered material ſervice to his country, if inſtead of being ſatisfied with half meaſures he had followed up with vigour the reſolutions with which he ſet out; he has however within the period of his fifteen years adminiſtration ſketched out ſome uſeful improvements. From 1777 to 1789 he was not at all times faithfully a friend to the alliance with France, notwithſtanding his profeſſions of attachment. His iraſcible diſpoſition, and the jealouſy peculiar to his country, had given her more than one cauſe of complaint. From that period he ſtood forth one of the moſt bitter enemies of the revolution, and would gladly have ſtrangled it in its birth. Were he ſtill poſſeſſed of power it might be difficult to do him juſtice: diſgraced, to do ſo becomes a duty.

In the firſt place then, Spain owes to him the eſtabliſhment of a coach carrying ſix paſſengers which ſets out twice every week from Bayonne to Madrid, performing the journey in ſummer time in ſix days, and in eight during winter. In the ſpaces of time which intervene between the arrival of the diligences, the mules uſed for drawing them are employed in forwarding perſons who take their own carriages with them; and thus it was that I travelled in 1792 from Bayonne to Madrid. This eſtabliſhment was carried on by a private perſon in 1789, but being taken the ſucceeding year out of his hands it has ſince been continued at the charge of the king, but was ſuſpended during the war. That it ſhould ſpeedily be re-eſtabliſhed is highly deſirable, as a means of allowing an eaſy intercourſe for the individuals of both nations, already prepoſſeſſed in favour of each other during the long continuance of a cloſe alliance, and with whom a ſtate of warfare has only tended to heighten eſteem, ſerving at the ſame time by affording a flux to that hatred which tranſitory circumſtances had accumulated, to make them for time to come ſenſible of the value of each to the other, notwithſtanding the difference of their two governments. The bonds which unite courts are as tranſient as their caprices. Family intereſts, intereſts of even minor value, have much influence on their deliberations. A popular government once well conſolidated is only acted upon by powerful motions. Intrigue, ceremonial trifles, the frivolous pretenſions of vanity, have leſs ſway over its determinations. How many ſources of quarrel are there not thus annihilated! The reſponſibility to which it is liable prevents the capriciouſneſs of levity. While it diſdains to diſſimulate the injuries it feels, it puniſhes thoſe only which are of magnitude. Nay I am doubtful whether it be not better for a monarchical government to have to treat with a republic, rather than with one formed upon the ſame plan as its own, and whether it may not contract alliances more durable and leſs liable to convulſion with the one than with the other. Thus in a marriage we frequently perceive that domeſtic peace is more the reſult of an affinity of character than of an aſſimilation of feature: but we

are digreſſing widely from the uſeful eſtabliſhments, of which the firſt idea is due to Mr. de Florida Blanca.

The improving of the highways chiefly occupied his attention. In 1777 there were no good roads between Bayonne and Cadiz except thoſe of Biſcay, and Navarre, and that which leads from the Eſcurial and Aranjuez to the capital. In 1792, I met with one of an excellent deſcription, running the whole diſtance from Irun to four leagues beyond Burgos; and which was continued, with ſhort interruptions, as far as Madrid. It would have been completely perfected, but for the obſtacles which war, however fortunate it may be, uniformly throws in the way of uſeful labours. There want at this time no more than twelve leagues to be completed, to make the road from Bidaſſoa to Madrid one of the fineſt in Europe. Very little is wanting to that from Madrid to Cadiz. In 1778 the latter was almoſt impaſſable in bad weather. In 1785 it was in great meaſure repaired, and carriages began to run poſt upon it. It is now almoſt entirely finiſhed; and communication between the two moſt important cities of the peninſula is, at length, become both eaſy and expeditious *.

As for inns, in ſpite of the attention of the before-mentioned miniſter, they are at preſent very far from perfection. Their improvement, projected and undertaken by him, is a more difficult taſk in Spain than elſewhere. His object meets with obſtruction in regard to place, manners, fiſcal rights, and, in a degree, from the conſtitution of the country, which authorizes excluſive privileges and monopoly, and veſts the power, as an appendage to ſignorial rights of ſelling certain commodities, in the lord of the manor, who delegates his authority to an inhabitant; and the latter ſtrictly enforces his right. It was neceſſary to capitulate upon theſe hindrances, and, where they could not be done away with, to adduce a remedy as well as poſſible. Notwithſtanding theſe impediments, for ſome time back very tolerable inns are to be met with in Spain. On the roads along which the coaches run, ſome are eſtabliſhed, provided with beds, linen, and even plate; and the innkeepers are allowed to keep eatables for travellers. Beſides, on this road there are others which are pretty good, particularly in principal towns; but every where elſe to the preſent day one muſt expect inns entirely deſtitute of conveniencies, and ſo diſguſting, in ſhort, as not to falſify the accounts of travellers.

In this reſpect, the Spaniards have not to look for any ſpeedy amelioration. Every thing is linked together in what conſtitutes the proſperity of a ſtate. Without good highways, good inns are not to be expected; and where both one and the other are wanting, whence are to come the travellers whoſe concourſe in turn ſupports the roads and inns? On the other hand, in order to entice travellers, a country muſt poſſeſs ſome advantages either on the ſide of inſtruction or gratification. One muſt either look to meet with amuſement in viſiting it, or improve one's health. Particularly if it be at one of the extremities of Europe, the traveller is there to be attracted by monuments of the arts, by the proſpects of buſtling induſtry, by a grand central commerce; and muſt not have to ſeek in vain the comforts of life, the charms of ſociety, and civil and religious liberty. But who will take a trip to Spain merely to behold, here fine roads traverſing arid plains, as is the caſe in the two Caſtilles; there, dreadful roads in countries bleſt with fertility and induſtry, as along the coaſts of the kingdoms of Valentia and Catalonia; to meet with towns deſerted and in ruins, a court not abounding with delights, few monuments, the arts but in their cradle, a burning climate, and the inquiſition?

* There has for a long time back exiſted a method of travelling in Spain, very quick but very coſtly, by ſending changes of cattle forwards to the different ſtages along the road. Theſe teams of ſix mules, which are put to the carriages in the twinkling of an eye, will travel five or ſix leagues with greater diſpatch than can be done poſt on any road beſide in Europe.

Spaniards,

Engraved by George Cooke

A Spanish Inn.

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Spaniards, eſtimable neighbours, allies worthy in ſo many reſpects to be better known, continue to improve your roads and your inns! We ſhall at leaſt be able to traverſe your country commodiouſly and eaſily; but in order to engage our ſtay, in order to pleaſe us, many advantages are wanting to your nation, ſome are refuſed it by nature, to obtain the others muſt be a work of perſeverance and time.

Leaving Bayonne we paſs through St. Jean de Luz after traverſing a very uneven and ill-kept road for the ſpace of nine or ten miles. Afterwards one has to croſs a ſmall arm of the ſea over a bridge, on the other ſide of which is the ſuburb of Sibourre. Shortly after the ſteeple of Orogne is diſcerned at rather more than a league from Irun, the firſt Spaniſh village on the other ſide of the Bidaſſoa. This little river, which ſerves as a boundary, famous in the political hiſtory of Louis XIV. from the iſland which it forms at a ſmall diſtance to the right of the place where the river is paſſed, was formerly called the iſland of Pheaſants. The interview between Cardinal Mazarin and Don Louis de Haro, which took place upon it, and of which the reſult was the treaty of the Pyrenees, occaſioned it to receive the name of the iſland of Conference. Small, uninhabited, and almoſt a deſart; like many perſons of moderate abilities in the world, it owes its fame to a fortunate occurrence.

As ſoon as the traveller has paſſed this iſland, he is in Biſcay. The country which he leaves varies little from that he enters upon, but the difference between the laſt roads of France and thoſe at the entrance of Spain even in 1793 were much in favour of the latter. The roads of Biſcay, thoſe at leaſt which run from North to South, may be ſaid to be among the fineſt in Europe. Few countries laboured, in this reſpect, under greater difficulties. Biſcay, which joins the Pyrenees, in this quarter much leſs elevated than towards their center and eaſtern range, ſeems to be an extenſive continuation of theſe mountains to the borders of Caſtile. In tracing a road in this part there were conſiderable deſcents to diminiſh, and high ſummits to turn with addreſs. Such ground required all the art which can be diſplayed in the conſtruction of roads. The three provinces (*Guipuſcoa*, *Vizcaya*, and *Alava*) of which Biſcay is compoſed, joined their efforts to accompliſh this end, as is uſual with them when their common intereſt is in queſtion. This part of Spain, which forms a ſtriking contraſt with the reſt of the peninſula, deſerves a more minute detail.

Each of theſe provinces has its particular government. In thoſe of Biſcay and Guipuſcoa the orders of the monarch are not attended to before the adminiſtration has ſanctioned them by its *exſequatur*. They hold ſeparately every year a general meeting, at which the adminiſtration renders an account of the manner of its employing the public money. Here the deputies aſſemble from all thoſe commonalties which poſſeſs a right of delegation. Theſe deputies are elected by the *ayuntamienetos*, (municipal corporation,) who themſelves are annually elected by the citizens; and, in order to be competent to this diſtinction, the poſſeſſion of property is requiſite to a certain amount.

Theſe elements of repreſentative democracy, although deſtitute of that perfection which certain modern publiciſts have imagined poſſible, cauſed a belief upon our invaſion of their country, and even during the negociation of peace, that theſe provinces were adapted, as well by their principles as by their poſition, to become an integral part of the French republic. It was an error. The Biſcayans, however jealous of their liberty they may be, are yet attached to the dominion of Spain; and, if their pride cauſe them to reject the yoke of a deſpotic monarch, policy engages them to agree very well with their royal protector. They poſſeſs beſides a ſpecies of ariſtocratic pride, which could but ill brook our principles of perfect equality. Enjoying excluſively their real or imaginary privileges, they would care very little for that liberty which they would have to

participate with ſix-and-twenty millions of fellow-citizens. An incorporation would have tempted them much leſs on the ſcore of finance. The three provinces tax themſelves to defray their ſeveral particular expences, and all they pay the king is a free gift, (*donativo*) which is rarely required of them, and which, if it were other than moderate, would not be granted. The ſtates divide the ſum agreed to among the different commonalties, according to their ſeparate aſſeſſments, which are frequently modified.

In other reſpects, nature has done little for the three provinces of Biſcay; and to this circumſtance is owing, in great meaſure, their love of liberty, and the indefatigable induſtry which has engendered the proſperity they enjoy: for, unleſs where particular circumſtances temper the pernicious influence of a fine climate, the more delightful countries of the world are peopled but with indolent beings, whoſe docile minds are prone to deſpotiſm.

The provinces of Biſcay and Guipuſcoa do not produce a ſufficiency of grain. That of Alava furniſhes enough not only to ſupply the two others, but a part of Caſtile, and Navarre in addition; and in 1790 and in 1791, its crop produced a profit to its inhabitants of upwards of 60,000l. ſterling. It is true, agriculture is almoſt its only reliance: it is on this account, although of greateſt extent, the leaſt populous of the three provinces, not having more than 71,000 inhabitants. The *Senorio* (thus Biſcay proper is called) has 116,000, and Guipuſcoa, within a ſpace of ſixteen or eighteen miles by fifty in length, comprizes upwards of 120,000. The whole coaſt of this latter province is peopled with fiſhermen and ſailors; the whole interior with peaceable farmers. Until circumſtances occurred to excite an animoſity, which declared itſelf in 1793, the people of Guipuſcoa lived on tolerably friendly terms with the neighbouring French; there ſubſiſted even between them, and particularly between the ports of St. Sebaſtian and Bayonne, a commerce, partly of an illicit deſcription, but highly beneficial to each nation, and which, at the return of peace, was eagerly renewed.

Bilboa is the moſt conſiderable town of all Biſcay, although it contains no more than 13,000 or 14,000 inhabitants. Some, however, of its former manufactories have declined. Its tanneries, once ſo productive, ceaſe to be ſo, now that the hides exported from America cannot be imported directly to Bilboa, and are ſubjected to heavy duties when ſhipped at one of the ports of the peninſula for theirs. Their economical mills, from which they were uſed to derive ſuch material advantage, are no longer occupied. The trade of Bilboa is now its principal reliance. This is very conſiderable indeed, for all kinds of merchandize are imported at and expedited from Bilboa. There are ſhipped, moſt of the wool which Spain exports, a quantity of iron, many loads of cheſnuts, the principal produce of the ſoil of Biſcay proper, in other reſpects ungrateful; and it is at Bilboa that moſt of the articles are imported from the various parts of Europe, for the ſupply of the northern parts of Spain. Its principal commerce is with England, France, and America. In the town there are two hundred mercantile firms, among which are ſome Iriſh, ſome German, and ſeven or eight French *.

Strangers, who reſide at Bilboa, have little reaſon to ſpeak well of their treatment. Liberty, jealous and ſuſpicious, exerciſes there a ſort of deſpotiſm, which deforms thoſe qualities of the government that are intereſting to the philoſopher. The *Senorio* maintains with obſtinacy againſt the crown its incomplete and, in a great meaſure, chimerical privileges; and, with great difficulty, admits to the enjoyment of them thoſe who are born out of their territory. Formalities the moſt tireſome muſt be ſubmitted to by

* Within theſe ſeven years Bilboa has experienced many changes. War has not been ſo injurious to its commerce as might be apprehended. The demand for Spaniſh wood has rather increaſed than diminiſhed. In the mean time, a part of their funds remaining unemployed, they have laid them out in building, and the town has received much embelliſhment.

thoſe

thoſe it feels diſpoſed to receive; and the French, in particular, up to the period of the laſt rupture, were not the leaſt ill uſed. A foreigner at Bilboa is not allowed even to hire a houſe in his own name, but is obliged to borrow that of an inhabitant; and, in order to be treated like a ſtranger by the Biſcayans, it is ſufficient that you be not a native. When a ſtranger is diſpoſed to become naturalized in Biſcay, even if he be a Caſtilian, he is obliged to prove his *filiation*, that is to ſay, to certify that he be not deſcended either from a Jew, a heretic, or from parents who have carried on any baſe profeſſion. The proofs required for the *nobles* of Biſcay are long. To ſatisfy themſelves, commiſſaries are diſpatched, at the expence of the candidate, to his native place, who examine his papers, and make enquiries, and who have an intereſt in procraſtinating their profitable miſſion. Doubtleſs there are modes of avoiding, or, at leaſt, ſhortening theſe formalities; but, whether owing to the predominance of envy, or malice, no part of the the inconveniencies, particularly the expence, is alleviated; and I know more than one novice, who had undergone every form to the letter. It is not every where that the right of citizenſhip is purchaſed equally dear.

Bilboa is ſituated near the ſea, on the right bank of a river of no great length, but deep enough to receive merchant veſſels of great burthen. This port is not the only one worthy of notice on the ſhores of Biſcay: St. Sebaſtian and Paſſage deſerve particular mention.

There is no road for carriages from Bayonne to Bilboa, and travelling all along the coaſt is very incommodious. But from *Hernani*, the firſt conſiderable borough which ſucceeds Irun, a very fine road leads to St. Sebaſtian, over a group of mountains, from the ſummit of which a bird's-eye view of it is obtained. This little city is only joined to the continent by a low and narrow tongue of land. Its port, if an artificial ſhelter, formed by jettys capable of receiving twelve or fifteen veſſels deſerves that name, is commanded by an eminence, on which an old caſtle in ruins is diſcerned. Its ſmallneſs is very perceptible from the ſpiral aſcent to the caſtle. The town is tolerably well built, and much buſtle reigns throughout it. It is the capital of Guipuſcoa, and the reſidence of the governor of the province.

From St. Sebaſtian to go to Paſſage, a ſhort league diſtant, you keep by the ſea, paſſing over the mountains, into the boſom of which a large gulph projects, apparently incloſed on every ſide, and which, at firſt, more reſembles an extenſive lake in the middle of the country, than a bay of the ſea: it is the port of Paſſage. It muſt be croſſed in order to reach the town whoſe name it bears; and, with much agreeable ſurpriſe, the traveller here meets with a crowd of young Biſcayan damſels, diſputing in their native tongue, (unintelligible even to Spaniards,) for the honour of guiding the rudder over the bay, which is about half a league wide. The town is built within the confined ſpace between the foot of the mountain and the bay; it is commanded by a caſtle, whence on one ſide you have a view of this vaſt baſon, and, on the other, of the ſea.

Port Paſſage, one of the largeſt harbours, and perhaps the moſt ſafe of any in Europe, is material to the proſperity of Biſcay; and the ſacrifice thereof, which it is ſaid there was once on our part an intention of exacting from the inhabitants, as well as St. Sebaſtian, and Fonterabia, another little port, at the mouth of the Bidaſſoa, would have been much more grievous to Spain, than it could have been advantageous to us. Here I muſt remark, that graſping ambition ſometimes makes wrong calculations; whereas enlightened policy looks into futurity. There are poſſeſſions extremely valuable to a neighbouring ſtate, which, for the ſake of mutual advantage, are much better in its hands than they could be in ours; diſtinct from their being by their poſition, as proved by many examples, ſubject to momentary ſubjugation; ſo that belonging to a neigh-

bour of whom we may be desirous of making an ally, by leaving them in his hands they afford an additional pledge for his fidelity; whereas, by their entire subjugation, they might furnish an obstacle to a sincere reconciliation. Gibraltar, ceded to the English by the treaty of Utrecht, is, perhaps, one of the safest guarantees of the alliance between France and Spain; and by tradition we learn, that this view of the matter did not escape the penetration of M. de Tercy.

Happy Biscayans, peaceably then enjoy the three ports which are the chief sources of your prosperity; and let us hope that the French, again become your allies, will not re-occupy them, except for their protection against the common enemy.

It is impossible in travelling through it to avoid admiring the country which they have animated; work of those Biscayans without a monarch's assistance, who for them lays aside the title of *King* for that of lord. These three provinces are the asylum of liberty and industry. In crossing Biscay, we perceive that their presence has given animation to every object; nothing can be more delightful than the hills; nothing more chearful than the cultivation of the valleys. For thirty leagues, the distance between the Bidassoa and Vittora, not a quarter of an hour passes but the traveller discovers some village or hamlet. The towns of Villafranca, Villareal and Mondragon, have an air of independence and plenty. What a difference in the aspect of this country and that of the neighbouring province! I am far from wishing to throw ridicule on the Castilians, whose virtues I esteem; but they are silent and melancholy as their plains; and bear in their austere and sallow visages the marks of lassitude and poverty. The Biscayans have a different complexion, and quite another countenance and character. Free, lively, and hospitable; they seem to enjoy their happiness, and wish to communicate it to those who come among them.

I shall long remember what happened to us at Villafranca. Arriving there early, on a lovely evening in autumn, with another traveller, we wandered on the outside of the town, amusing ourselves with observing the varieties of its cultivation. Several groups of peasants in different parts of the orchards engaged our attention; in turn we excited theirs. A moment of mutual curiosity caused us to approach each other. We both spoke Spanish with tolerable facility; we knew that it bore no resemblance to the language of the Biscayans; but we could not imagine that in a province so long subjected to Spain, that that of the sovereign should be utterly unknown: we were obliged to have recourse to the primitive language, and gave these good people to understand that we wished to taste their fruit. They immediately strove who should be the first to oblige us; our hands were soon filled, and we were strongly solicited to fill our pockets also. Some of the peasants went to procure us fowl and fresh eggs; we had great difficulty in preventing them from being offended at our refusal, and regretted that we had no other interpreter than our looks and gestures. We were obliged, at last, to leave them; but as we had rambled without directing our steps to any particular place, and were unable, without a guide, to find the way back to our inn, our benefactors perceived our embarrassment, and each was emulous to become our guide. Those whose services were not accepted, kept for a long time, their eyes fixed upon us. They could not but easily discover that we were surprized at their hospitality, and seemed somewhat hurt on the occasion. We left them some marks of our acknowledgment, which they received in such a manner as proved to us the disinterestedness of the reception we had met with. We seemed to quit those amiable natives of the south-sea islands, whom Messrs. Cook and Bougainville have taught us to love, and yet we were not twenty leagues from Bayonne.

These Biscayans, who are so different from the Castilians, seem the subjects of a different government. Their province is considered, in many respects, as beyond the

Spaniſh frontiers. Except a few reſtrictions, all merchandize enters, and is never examined or taxed but at the interior limits. The province has other privileges of which the people are very jealous, but which have recently been more than once attacked; for example tobacco and foreign muſlins have been abſolutely prohibited, ſo precarious a bleſſing is liberty in every country. Nevertheleſs the Biſcayans yet preſerve many of their forms. We have before noticed that the impoſt which they pay the king has the title and character of a free gift (*donativo*). If the king be in want of a certain number of ſoldiers or ſailors, he notifies his wiſhes to the province, and the people find the moſt eaſy means of furniſhing their contingency. The Monarch exacts nothing with an air of authority, he is almoſt always obliged to treat with them. On many occaſions has Biſcay ſet at nought the orders of the court, and the ſupreme deciſions of the council of Caſtile, when it has judged them to be incompatible with its ancient ſtatutes. It has beſide a particular court of juſtice. In Biſcay proper an appeal lies from the ſentence of the corregidor to a magiſtrate called a chief juſtice, (*juez mayor*) who is at the ſame time the guardian of privileges. It is true he is nominated by the King, and can look to his favour alone for attaining the more eminent ſtations to which he may aſpire.

The Biſcayans maintain, what they term their liberty, with an energy which does honour to their character. In its conduct towards them, the court appears to treat them rather with eſteem, than to be apprehenſive of any inſurrection. On the other hand, it muſt be allowed that, more ſkilful and better adapted for intrigue than what free men are in general, they have diſcovered a method, and particularly within the laſt century, of learning the whole value due to theſe appearances, having inceſſantly in the army, in the navy, in different offices, and even in adminiſtration, ſome of their countrymen for defenders about the throne. Notwithſtanding this, they have oftentimes ſhewn themſelves worthy of liberty, and to it have made more than one valuable ſacrifice. They have an averſion to cuſtom-houſes, which, on various occaſions, has been ſhewn to be inſurmountable. In 1778 the miniſter Patintro, being deſirous of forcing them upon them, nearly originated a general rebellion. When, in 1778, the trade with South America was thrown open to ſeveral ports of Spain, the Biſcayans, if they had been willing to admit of cuſtom-houſes, might have participated in the advantage with the reſt; but in the officers of the cuſtoms they beheld ſo many ſatellites of deſpotiſm, and their noble miſtruſt rejected the intended favour of the Sovereign. They can make no commercial expedition to America, without preparing it in a neighbouring port, ſo that the moſt induſtrious people of Spain, the moſt experienced in navigation, and the beſt ſituated for ſuch a commerce, ſacrifice a part of theſe advantages to that of preſerving, at leaſt, a remnant of liberty. Thus, before the war which gave independence to Britiſh America, all the inhabitants of one of the provinces engaged themſelves, by an oath, not to eat lamb, in order to increaſe the growth of wool, with the intention of rendering uſeleſs the manufactures of the mother country.

In fact, the Biſcayans have had from the beginning of the preſent century an advantage over all Spaniards in American commerce. The company of Caracas, known alſo by the name of Guipuſcoa, had warehouſes at Port Paſſage, and thence made their ſhipments; but this company, in the laſt war with England, was unfortunate, which has induced government to relieve it from a burden, that, from circumſtances, became highly inconvenient—to releaſe it from the charges of adminiſtration, without excluding it from trading with the Caracas.

Biſcay is remarkable for its roads, cultivation, and privileges, but more particularly for the induſtry of its inhabitants, which is chiefly exerciſed upon iron, the principal production of the province. In order to improve this manufacture, the Biſcayans have

recourſe to foreign correſpondence, public lectures and travelling. At Bergara there is a patriotic ſchool, where metallurgy is taught by the moſt able profeſſors; ſome of which, ſuch as our ineſtimable Prouſt, have been invited from the neighbouring ſtates. Students in chemiſtry have been ſent to Sweden and Germany, where they have acquired, as well in the bowels of the earth as in the ſhops of manufacturers, ſuch knowledge as has already been profitable to their country; for this word is not a vain ſound in Biſcay. The inhabitants, ſeparated by their ſituation, language, and privileges, and confined within narrow limits, are called by nature and policy to feel the ſpirit of patriotiſm, and are obedient to the call. This noble ſentiment produced the ſchool of Bergara, where the nobility of the country are brought up at the expence of the ſtates, and thoſe patriotic ſocieties, which have ſerved for a model to the numerous ones of this deſcription ſpread over all Spain within theſe twenty years; and, not long ago, the ſame patriotiſm has given new employment to the induſtry of the Biſcayans, by digging the port of Deva, between St. Sebaſtian and Bilboa.

We have given a ſketch of Biſcay as amateurs of liberty and public economy. We ſhall now proceed through the province, ſimply as travellers.

CHAP. II.—*Continuation of travels through Biſcay. Details reſpecting Victoria, Pancorvo, Burgos. Canal of Caſtile. Valladolid. The two cities of Medina. Excurſion into the Kingdom of Leon. Relations concerning Salamanca, Segovia, &c.*

THE firſt town we come to after leaving Irun is *Hernani*. It is ſurrounded by mountains, which, in the ſpace between them, contain a valley of rather cheerful appearance. A ſmall river fertilizes it, the courſe of which is followed for ſome time after leaving Hernani, and is met with again at Toloſa; (the firſt place at which the travellers by the coach ſleep); it is afterwards loſt ſight of until you reach Mondragon. In the courſe of this journey it is croſſed ſeveral times over elegant and ſubſtantial ſtone bridges, a ſpecies of luxury to which, in conſtructing highways, the Spaniards are much addicted.

At ſome leagues from Toloſa, you paſs through the ſmall town of Alegria, the cradle of ſeveral diſtinguiſhed ſubjects; among others, of the *Mendizabal*, well known in the navy. Villa Franca is the next town at which we changed horſes; the following one is Villa Real, beyond which we had an immenſe ſteep hill to ſurmount. At the foot of this mountain is Anzuela, whence a freſh change of horſes takes one forward to Mondragon.

Two great leagues before you arrive there, the road divides into two branches, one of which leads to Madrid, the other turns to the right and finiſhes at Durango, upon the road to Bilboa. Beyond Durango the road is impaſſable for carriages; ſo that to travel commodiouſly from Bayonne to Bilboa, it is requiſite to aſcend as high as Victoria: but there is a road which is tolerably good, that runs direct from Madrid to Bilboa, paſſing through Ordunna, where the interior cuſtom-houſe for Biſcay is eſtabliſhed.

From Mondragon to Victoria is five great leagues. They are travelled over in leſs than four hours, notwithſtanding one has to paſs the difficult mountain of Salinas, famous for more than one accident. A party in a coach, one of which was a friend of mine, met with one ſome years ago, which merits a ſlight digreſſion, on account of its ſerving to ſhew the manners of a claſs of the Spaniſh nation. There are very few muleteers, few carters, on ſetting out on their journey, few coachmen, who, on mounting their box, omit making the ſign of the croſs, mumbling a prayer, few but what carry ſome relics

relics or ſcapularies. With this preliminary, with this taliſman, they conſider themſelves ſecure from all miſchance. The conductor of the carriage alluded to had not neglected theſe wiſe precautions; yet were they uſeleſs. In climbing the mountain of Salinas, his mules beguiled his care, and drew the carriage with them over the precipice. He eſcaped with a few ſcratches, and his paſſengers with ſome ſlight bruiſes. The muleteer might have ſeen, in the ſlightneſs of his chaſtiſement, a ſignal evidence of the protection of Providence, and its agents. But not ſo; while his paſſengers were extricating themſelves, gathering up their ſtraggled property, and bemoaning trifling loſſes or damage, he, in a fit of paſſion, which had little of ſanctity in it, tears away his relics from under his cloaths, and the ſcapularies with which he was loaded, rends them in pieces, and, daſhing them on the ground, thunders out a litany of ſomewhat a new deſcription: "*Al demonio Santa Barbara; a los diables San Franciſco; al infierno nueſtra Senora del carmen,*" &c. &c.—"To the devil with St. Barbara; to the congregation of hell with San Franciſco; to hell with our Lady del carmen," &c. &c.; curſing one after another the inefficiency, or treaſon of all the ſaints of both ſexes, to which he had addreſſed his vows; giving them an energetic notice that they had irrecoverably loſt all his confidence. Leſs than this would have been ſufficient to conſole, and even enliven his paſſengers.

After paſſing the town of Salinas, you continue to aſcend for ſome time, when, deſcending again, the mountains appear to decline ſenſibly, become more unfrequent, and are at greater diſtance from each other. After entirely clearing them, the traveller arrives at Vittoria, capital of the province of Alava. It ſtands in the middle of a well cultivated plain, abounding in villages; the town is ill built, and the ſtreets badly paved; it, however, exhibits the appearance of activity and induſtry. Within theſe few years a ſquare has been built, each ſide of which contains nineteen arcades. This edifice, notwithſtanding ſome defects, would be an ornament to a city more conſiderable than that of Vittoria: the plan was given by M. Olavide, a native of Vittoria. There is a pleaſure in ſeeing a citizen thus dedicate his talents to the embelliſhment of his native country, in which they were cultivated.

Vittoria being the laſt town of Biſcay towards Caſtile, the traveller is ſubject to formalities, ſometimes very rigid, but at all times troubleſome. Every thing which enters or leaves the province is here minutely examined, ſuſpected letters are here intercepted, and thoſe which are myſterious are decyphered; couriers, thoſe even which belong to the court, are ſometimes detained here, when their paſſports are abuſed for the purpoſe of ſmuggling, particularly of coin, which of all offences againſt the revenue is deemed in Spain the moſt unpardonable. I had no right to complain of my treatment in 1792: notwithſtanding it was the period when the animoſity of Spain towards every thing that related to our Revolution began to exhibit itſelf in every ſhape. On the contrary, I had great reaſon to ſpeak well of every one with whom I had to do. M. d'Alava, who filled the office of governor, took upon himſelf to permit my entrance into Caſtile, ſimply upon my ſhewing my paſſport, although a formal permiſſion from court was then neceſſary for going beyond Vittoria. In conformity to a recent law, the object of which is to encourage the building of carriages in Spain, a tax of ten per cent. on the value, as aſcertained by an officer, is exacted on every carriage entering Spain, a certificate of which is given to the traveller; which levy is however returned upon its repaſſing the frontiers. Through the interference of a very obliging perſon in office, to whom I was recommended, I was exempted from the exaction, this gentleman taking upon himſelf to become my ſecurity.

Theſe

Theſe were not by many the only nor moſt precious demonſtrations of kindneſs which I received from the obliging inhabitants of Vittoria. Some months afterwards, my family arriving from the north of Germany reſided among them, while waiting for directions to proceed to me. One of my children was attacked with a ſerious illneſs. They ſhared our ſorrows with us; they paid every poſſible attention to the child, and every tribute of conſolation to the mother. Their extreme benevolence is ſtamped on our hearts in indelible characters. Reſpectable Alava, you, to whom beneficence is ſo natural, accept the homage of my gratitude; ſhare with him my heart felt thanks, you inceſtimable women, matrons, who ſo frequently bemoaned your having no other medium to convey your cheering aſſurances, than that of a language unknown to the object of your commiſeration; and above all, you, Don Antonio, whoſe ſenſibility is not inferior to your medical ability, and who ſeemed to attend your own child while watching over the health of that we were threatened with loſing. And you, reader, pardon theſe effuſions of a father's heart!

For thoſe who value the quiet of the mind, the enjoyment of nature unadorned by art, and the means of living in plenty with cheapneſs, Vittoria is not without its attractions. Its climate is temperate, although the mountains which ſkirt its horizon, particularly towards the north, render the winter ſevere. The plain which ſurrounds it produces every requiſite of life, and particularly excellent fruits and vegetables. The amuſements, the luxuries of large towns, are here very little known; but here one may reliſh thoſe innocent pleaſures, delicious enjoyments of the heart yet uninfected with the refinements of civilization. At certain periods of the year, the feſtival of boys is celebrated, that of maidens, and that of married people; ceremonies intereſting by their ſimplicity, which at once indicate the purity of their manners. and inſure their preſervation.

Leaving Vittoria, on its right is perceived the river Arriaza, which is croſſed over a ſtone bridge. Afterwards you paſs the villages of Publa and Arminon; then aſcending a hill, about a league of high road preſents itſelf, ſtraight and of a ſuperb appearance, being a raiſed cauſeway which leads to Miranda. Midway, on this road, a marble column rears its head, to denote the limits of the province of Alava and Caſtile; a monument poſſibly more pompous than the ſubject requires.

Miranda, a ſmall town, at five leagues from Vittoria, is divided into two unequal parts by the Ebro. This ſtream, which formerly was the boundary of the conqueſts of Charlemagne towards the ſouth, and as of ours in 1795, is one of thoſe objects aggrandized by the magic colours of hiſtory, which is found much inferior to its reputation. It is true, at Miranda it is near its ſource, which is at the foot of the mountains of the Aſturias; but the Ebro, which traverſes the greater part of northern Spain, running from north-weſt to ſouth-eaſt, has, up to late times, remained almoſt wholly uſeleſs to navigation. In the courſe of this work we ſhall notice what has been done towards rendering it ſerviceable to the provinces it waters.

It is croſſed at Miranda over a tolerably handſome bridge. Fronting is ſeen a ſtoney hill, with a dilapidated caſtle on its ſummit, of no ornament to the arid ſcene. Shortly after we diſcover the high rocks of *Pancorvo*, which have a moſt picturesque appearance, and have already exerciſed the pencil of ſeveral travellers. At Mayago, two leagues farther, we enter the narow valley incloſed between theſe rocks, half a league beyond the village whoſe name they bear. Shortly after, we meet with two other valleys, Santa Maria del Cubo, and El Cubo, where the wretchedneſs and idleneſs of Caſtile are viſible in all their deformity. We then traverſe vaſt plains tolerably well cultivated as far as Bribieſca,

Bribieſca, a ſmall town incloſed by a wall, which has four gates placed at equal diſtances. The road leaves it on the right. In 1777 and 1785 Bribieſca wore a melancholy appearance, it was deſtitute of verdure, and worthy of Old Caſtile. In 1792 it poſſeſſed ſome gardens and orchards. This was not the only change for the better which I remarked during my ſecond journey to Spain.

The road from Irun to Bribieſca has always been excellent. It is generally lined with trees, which ſucceed but ill, and a profuſion of ſtony limits. In parts it may be conſidered ſcarcely wide enough; for, deſirous of avoiding the profuſeneſs evident in the highways of France, they have nearly gone into the oppoſite extreme, notwithſtanding Spain has leſs reaſon to fear a waſte of land than France.

From Bribieſca to Burgos is ſix leagues, where you travel over a country the moſt arid and naked of any in Europe; paſſing through two of the moſt dirty and frightful villages in all Spain, Monaſterio and Quintuna; near to which you croſs a ſtone bridge, which is rather elegant. Burgos, the capital of Old Caſtile, is pleaſantly ſituated on the right bank of the Arlançon, at the foot of a hill, on the top of which are ſeen the ruins of an old caſtle. This town was formerly opulent, induſtrious, and commercial; it now preſents the image of poverty, idleneſs, and depopulation. It contains no more than 10,000 inhabitants. Its only buſineſs conſiſts in the tranſport of wool to the northern coaſt for ſhipment. Its manufactures ſcarcely deſerve mentioning, if that of leather be excepted, which is of no more than twenty years ſtanding. It proves more than any other city in Spain, that the luxury of churches abſorb and keep ſtagnant wealth ſufficient to vivify entire cantons. The magnificence of its cathedral offers a ſhocking contraſt to the ſorry buildings which ſurround it. This impoſing and well preſerved edifice is a maſterpiece of elegance in the Gothic taſte. One of the chapels contains a picture by Michael Angelo, repreſenting the Virgin dreſſing the infant Jeſus, who is ſtanding upon a table. The noble air which he gave to his figures is very obſervable in theſe, as is alſo the ſtrength and correctneſs of deſign, to which he frequently ſacrificed grace.

The cathedral is almoſt oppoſite one of the three bridges over the Arlançon. On the other ſide of the ſame bridge is a ſuburb, where a miraculous image, know by the name of *Santo Chriſto*, is to be ſeen; which is much better known, and attracts more notice than the picture of Michael Angelo. It is kept in a dark chapel, perfumed with incenſe, and full of *ex voto*'s and ſilver lamps, and into which perſons are introduced in a manner ſo myſterious, as to have ſomething awful in it, even to thoſe who are no way inclined to ſuperſtition. The crucifix is concealed behind three curtains, that are drawn one after another with a ſtudied ſlowneſs, which adds to the religious ſolemnity. Simple people believe that its beard grows. Devotees attribute to it many miracles, but impartial eyes can diſcover in it nothing extraordinary.

Burgos is the birth-place of two famous captains, known even out of Spain; *Fernando Gonzales* and the *Cid Campeador*. In the time of Charles V. a triumphal-arch of ſome taſte was erected in memory of the former; and, latterly, Burgos has paid a ſimilar tribute to the Cid, in erecting a monument on the ſpot where his houſe is ſuppoſed to have ſtood. The juſtice is due to the Spaniards to acknowledge that they reverence the remembrance of their heroes, and ſpeak of them with the ſame delight as ruined perſons of their former opulence; or rather let me ſay, with that national pride which evinces that, if their predilection for the noble and grand be lulled for a term of too long duration, it is not extinct, and only awaits opportunities to call it into action.

The new ſquare at Burgos, conſiſting of uniform, but ſmall and mean houſes, deſerves notice upon no other account, than its having in its centre a ſtatue of Charles III. in bronze.

bronze. It is a bad likeneſs, and ill executed. It is remarked merely for being almoſt the only monument of this deſcription in Spain. The Spaniards, however much devoted in general to their ſovereigns, have been leſs prodigal than any other people of theſe tributes of adulation.

If the interior of Burgos preſents little but what awakens gloomy recollections, its environs are yet embelliſhed and fertilized by the courſe of the Arlançon. This river waters verdant meads, has three elegant ſtone bridges over it, within the ſpace of half a league, and bathes the walls of two remarkable edifices ſituated below the town; the one, the monaſtery of Las Huclyas, a convent of women, the abbeſs of which poſſeſſes conſiderable privileges, and a juriſdiction bordering on ſovereignty; the other, the King's Hoſpital, famous for its extreme cleanlineſs and ſalubrity. The Spaniards might give leſſons to the beſt poliſhed nations on theſe monuments of charity. No heart-deadening foreſight as yet has made them apprehenſive, leſt the unhappy ſhould find themſelves ſo much at eaſe in this aſylum, as to ſee its doors open to receive them without regret.

Near Burgos is ſtill another building which merits the attention of the traveller: it is the chartreuſe of *Miraflores*, where are the tombs of John II. and his wife, magnificent, at leaſt in their materials, and the colouring of the paintings which adorn them.

Burgos has a ſufficient number of trees in its neighbourhood for the ornament of its avenues and walks, although throughout the country, which is the coldeſt in Spain, there is a great ſcarcity of wood; a want felt through almoſt all the interior of the kingdom. In 1753 it began to excite the attention of government. An order of the council of Caſtile, the execution of which was entruſted to men of little intelligence, enjoined every inhabitant to plant five trees, and penal laws ſeemed to enſure its effect, but the government was deceived. In ſome places malevolence, in many, particularly in Old Caſtile, the eſtabliſhed opinion, that trees attract birds to the deſtruction of grain, and, in ſeveral others, bad management, contributed to render this meaſure inefficacious; here, ſaplings which began to flouriſh, were cut down by paſſengers, and there, ſuch as were in an apparently proſperous ſtate, were tranſplanted from the ſpots where they grew, to others, where for want of care they periſhed; almoſt every where the order was fruitleſs. At length, towards the end of the reign of Charles III., recourſe was had to the moſt effective means, thoſe of example. The King, in the neighbourhood of Madrid, and at his reſidencies; the Infant Gabriel, in his grand priory of Malta; ſeveral grandees in Spain; many rich individuals, in what are called *their domains;* ſome patriotic ſocieties, prelates, and even rectors; all, animated with that public ſpirit which gives enjoyment by anticipation of that wealth which, individually, few can look to enjoy, all theſe, reaſoning like the old man of La Fontaine "*our grandchildren will here ſit in the ſhade;*" conjointly formed better conceived plantations, ſheltered from the devaſtation of travellers, as well as of animals; and already ſome orchards and copſes, variegate the monotony of the horizon, and enliven with verdure part of the naked and arid ſoil of La Mancha and the two Caſtiles.

The Arlançon again preſents itſelf to view on leaving Burgos, and is ſcarcely ever loſt ſight of in any part of the road to Villadrigo; a miſerable, although agreeably ſituated village, to the right of the river, at the bottom of a vaſt plain, on which are ſome paltry vineyards.

We next perceive the Piſuerga, another ſmall river, which runs from north to ſouth, and the waters of which it was intended ſhould be made to ſupply that canal of Caſtile, projected and begun in the reign of Ferdinand IV., afterwards almoſt abandoned to the injury of Old Caſtile, which has great occaſion for ſuch an opening for the ſale and in-

creaſe of its productions. The canal was to begin at Segovia, and, following the courſe of the Ereſma, which falls into the Duero, aſcend again as far north as Reynoſa, receive from the little rivers, in its paſſage, the tribute of their waters. Reynoſa is but twenty leagues from Saint Ander, a ſea-port. A road, but which will be ruined before the canal is finiſhed, has been made to facilitate a communication by land with Old Caſtile. In 1792 the ſuburb road which I had travelled along all the way from Irun, ended at Eſtpar; ſince then it has been continued ſome leagues beyond Valladolid.

Continuing our way along the banks of the Piſuerga, and after having paſſed two ſteep hills, the feet of which are waſhed by the river, we arrive at *Quintana de la Puente*, near to a bridge of eighteen arches, and *Torquemada*, one of the moſt dirty and wretched towns in Spain. The Piſuerga is again croſſed here over a bridge of twenty-ſix very ſolid arches, and which has lately been almoſt wholly rebuilt. Afterwards we arrive at the village of Magorz, where the Arlanza joins the Arlançon. A little farther, near Duennas, theſe two rivers unite with the Piſuerga, and run by Valladolid before they fall into the Douro, or Duero. Were it not for the courſe of the Piſuerga, the banks of which are extremely pleaſant, and embelliſhed at ſmall diſtances by groups of trees, nothing can be more dull and leſs varied than the road from Valladrigo to Duenna. Before we arrive at the latter town, which ſtands upon rather a ſteep hill, by the ſide of the Piſuerga, we ſee on the left a great monaſtery of Benedictines, called St. Iſidro, fronting a new road, begun in 1784, by the governor of Palencia, which is one of the beſt in Europe.

This road, undertaken at a time when the project of rendering paſſable the great road leading to France was newly conceived, was conſtructed at the expence of the circumjacent communes, and may ſerve as a model for other nations to copy. It proves that an intendant may, in ſome circumſtances, be good for ſomething, as Mr. Turgot heretofore proved in Limouſin. I ſhall further obſerve, that it may tend to ſhew that, in every diſtrict, an adminiſtrator acting by himſelf, ſeverely attentive to his duty, reſponſible in himſelf, and long in office, is better able than any union of tranſitory adminiſtrators, however well choſen, to infuſe into plans of a certain extent, that connection, activity, and emulation, which are neceſſary to enſure ſucceſs; as well as that economy, which admits of the multiplication of uſeful undertakings.

Palencia is indebted to the attention of the intendant of its province, ſeconded by the chapter of the biſhopric, for other ornaments and improvements. Situated in the center of a canton renowned for its fertility, (the Tierra de Campos,) it has, like many others, fallen off from its ancient ſplendor, and is no longer famous, except for the filthineſs of its ſtreets, the magnificence of its cathedral, and its manufactories of blankets, bays, and light ſtuffs, which are in great demand.

Duennas, which is only two leagues from Palencia, although agreeably ſituated, ranks yet amongſt the ſaddeſt and dirtieſt towns on this road. Some years back it poſſeſſed an inn, which travellers took pleaſure in noticing as an exception. That which the coach ſtops at, on the contrary, is one of the moſt incommodious in Spain. Duennas has, however, ſome manufactories; among others, one of leathern bottles, which are the only veſſels uſed for holding wine in this country.

After leaving the hills of Duennas the whole country, as far as Valladolid, is perfectly flat and naked. Immediately after leaving Cabezon and its great ſtone bridge, the ſteeples of that city are perceived. On this ſide, the entrance into Valladolid is pleaſant, being through an avenue of trees, which has adjoining alleys ſerving as public walks.

In 1777, when I firſt beheld this city, I was ſhocked by the want of cleanlineſs every where diſcernible, and which diſguſted more of the ſenſes than one; eight years after I perceived an alteration for the better, and, in 1792, I found Valladolid not only much leſs dirty, but greatly improved. Agreeable plantations had been eſtabliſhed a little previous along the banks of the Piſuerga, and on the *Campo Grande*, a ſquare ſituated at one of the extremities of the city, remarkable for its immenſe extent and its thirteen churches.

It has another ſquare much more regular than this, with three ranges of balconies, in which it is aſſerted twenty thouſand perſons might be ſeated. I had an opportunity of judging of its capacity on my firſt journey into Spain, when I chanced to arrive at Valladolid at the preciſe time of a bull-fight, an exhibition which happens but once in three years. How fortunate would this have been for an amateur: for my part, I was none, and the ſight did not make me one. I was nevertheleſs ſtruck by the concourſe of curious people that the ſhew attracted from all quarters for ſeveral leagues around. The famous *Torreador Pepehillo*, whom, ſince that time, I have frequently ſeen, had been ſent for on the occaſion from Madrid. He preſented ſeveral bulls which he had ſlain to the ambaſſador that I accompanied, a cuſtom generally followed where diſtinguiſhed perſons happen to be ſpectators; and each of theſe bloody tributes was a ſignal for a handful of gold thrown from the box of the corregidor, where we were ſeated, on the floor of the theatre of the exploits of Pepehillo. He certainly did not require ſuch a ſtimulus, but I never beheld him more ſkilful nor more fortunate than on this occaſion. Every thing in this ſpectacle, which was of three hours duration, was new to us; the ſcene itſelf, the treatment we received, the manners, the dreſs, and the language. At the end of this entertainment, the box of the corregidor was transformed into a refectory. We ſaw glaſſes of water handed round, chocolate, candies of every ſhape, and every colour; and knew not how to refuſe the obliging importunities with which we were beſieged. Geſtures were the only expreſſion of our declining them, and of returning thanks. After this who ſhall ſay *let a man know French and he may traverſe Europe*. However from this expoſure we formed an high opinion of the affability of the Spaniards, and their taſte for ſweetmeats.

The churches of Valladolid, thoſe eſpecially of the Dominicans and of *San Benito*, are elegant, according to the Spaniſh taſte, that is, ſpacious and full of altars richly decorated and gilt. They moreover contain ſome tombs of white marble, admirably ſculptured. The ſculptures, as well in coloured wood as in marble, in detached groups, or bas relief, may be traced back to the revival of the arts in Spain; an epocha which produced Juan de Juni, Berruguete, Becerra, and others, who though little known out of the peninſula would yet do honour to more enlightened ages.

The new cathedral of Valladolid is repreſented by L'Abbé Pons as a fine building. I ſaw in it an enormous maſs of dark-coloured ſtone pilaſters round the nave of the Doric order, and a high wall which forms the back of the choir, and prevents thoſe who enter from viewing the reſt of the church. The Abbé Pons, who travelled as an amateur of the arts, frequently laviſhed praiſe, and criticiſm, on objects worthy neither of the one, nor the other.

Valladolid is one of the moſt conſiderable cities in Spain: it is the reſidence of a biſhop, the ſeat of an univerſity, of a patriotic ſociety, of one of the ſeven grand colleges of the kingdom, and of one of the ſupreme tribunals called the chancery. Notwithſtanding all this it ſcarcely contains twenty thouſand inhabitants, while in the time of Charles V. it had a hundred and twenty thouſand. At that time it furniſhed

all the neceſſaries of life; and was a buſtling city, with a great trade; but indolence, and the great increaſe of prieſts and monks have annihilated almoſt all its advantages. The court which ſometimes reſided there, removing in the reign of Philip III. to Madrid, drew along with it moſt of the opulent families; and at preſent, nothing is ſeen but empty houſes crumbling into duſt on every ſide. Nor aught of its ancient ſplendor, but a prodigious number of ſacred buildings. Without its walls, is a perfect waſte, notwithſtanding the fecundity of a territory fit for every ſort of culture, and abounding with water; within, an equal deficiency of induſtry; its only manufactures which were a proſpect of ſucceſs, are light ſtuffs, and coarſe camblets. Its gold and ſilverſmiths were formerly celebrated, and deſervedly ſo; there are ſtill as many in one of the beſt peopled quarters of the town, but, at preſent, they are not the moſt ingenious.

Individuals have endeavoured for ſome years back to raiſe Valladolid from its ſtate of inſignificance. A ſchool for drawing has been eſtabliſhed there, and an academy, at which mathematics are taught; under the directions of the police, many quarters of the town have received improvement, and its neighbourhood, by new alleys and plantations of mulberry-trees; and two leagues off, a ſuperb highroad towards Madrid, and eight leagues to Palencia have been completed, acroſs a country ſtill perfectly bare of trees; for the ſcarcity of wood, which cauſed Philip III. to quit Valladolid, has continued ſince his time to increaſe.

In the convent of Fuenſandalgne, a good league from this city, the amateur of the fine arts meets with three paintings of Rubens, equal for their freſhneſs of colouring to his beſt pieces. Semancas, which continues to be the chief depôt of the archives of the monarchy, is but two leagues from Valladolid.

Madder is cultivated with ſucceſs in a part of the neighbourhood, as well as in the provinces of Burgos and Segovia, in the Aſturias, Andaluſia, Arragon, and Catalonia. This plant, which for a long time has been known to agree with the climate of Spain, did not awaken the attention of government before 1742. The cultivation thereof, which has made perceptible progreſs, ſaves Spain an annual tribute, which ſhe was before accuſtomed to pay the Dutch, of 10,000,000 of rials. Spaniſh madder is cheaper, and better than any other, and foreigners begin to appreciate its value; even during the American war, the Engliſh drew it from the vicinity of Medina, and Ciudad Rodrigo, through the medium of the Portugueſe ſea-ports. This new branch of induſtry is the more valuable, from the great increaſe of the manufacture of chintzes in different parts of Spain: and, in order to encourage the cultivation of it, a duty of 45 rials per cent. is impoſed on foreign madder imported.

That part of Caſtile which is on the right, travelling from Burgos to Segovia, a loſt country to the modern touriſt, who rarely paſſes over it, yet contains two cities, which deſerve particular notice, were it only for the contraſt which their preſent appearance affords with their former proſperity.

Medina de Rio Seco, formerly renowned for its manufactories, is reduced from a population of about thirty thouſand to fourteen hundred chimnies. To it, its fairs were a ſource of ſo much opulence, that Spaniſh exaggeration ſurnamed it the *Little Indies*, *India Chica*. There is no more than the ruins remaining of its ſtrong caſtle, which was in vain beſieged by Henry de Tranſtamare, in the war between him and the King Don Pedro.

A more lively ſubject of regret is met with in another town of the ſame name, Medina del Campo. This city, formerly the reſidence of ſeveral kings, the theatre of great events, and the emporium of an extenſive commerce, and peopled with from fifty to ſixty thouſand inhabitants, has now no more than a thouſand chimnies. Its celebrated

fairs, its trade in bills of exchange, its large ſale of Segovian cloths, the beauty of its edifices, the cleanlineſs of its ſtreets, exiſt no longer but in the annals of hiſtory. What the ravage of centuries, joined to the havoc of thoſe long and terrible wars which overturn whole empires, have ſcarcely been able to effect on the ancient cities which were any ways famous; two centuries of neglect and bad adminiſtration have operated on Medina del Campo, and ſome other cities of Spain. Time, with reſpect to her, ſeems to have haſtened his courſe with tenfold rapidity; and, from the depth of the ſepulchre wherein it is entombed, its grandeur may be looked upon as contemporary with the ſplendour of Perſepolis and Palmyra. Singular example in modern Europe! what ſubject for reflection does it not furniſh for ſome of its people?

After the churches, on which opulent idleneſs has always ſome funds to laviſh, the moſt handſome building of Medina del Campo is that of the ſlaughter-houſes. Philip II., whoſe extravagant undertakings ſo greatly contributed to the deterioration of Spain, has left, at leaſt in this town, a monument of his benevolence.

The two cities of Medina bring us near to the kingdom of Leon; of which we ſhall juſt ſay a word before we reſume the road to Segovia.

This part of Spain is one of the moſt arid and waſte. On the road from Palencia to Leon, its capital, the canal of Campos is met with, begun under the adminiſtration of Enſenada, and deſigned to enliven the commerce of Caſtile and Leon; but no more than twelve leagues of it are yet completed; that is to ſay, ſix leagues in one part, and as many in another. It was intended to end at the Douro, running by Palencia and Duennas, but was relinquiſhed for a long time, afterwards reſumed by the miniſter Florida Blanca, and again abandoned for ſchemes more vaſt, but poſſibly not more uſeful. It is not by ſuch a vacillating ſyſtem, that the regeneration of an empire can be effected.

Leon, a city pleaſantly ſituated, and of importance up to the period of the union of its crown to that of Caſtile, contains no more than fifteen hundred chimnies, divided into thirteen pariſhes, with nine convents. Its neighbourhood is, notwithſtanding, tolerably fertile, and adorned with plantations. It has ſome manufactories of linen, which are not conſtantly employed throughout the year, and of which many have latterly been given up.

Salamanca, the ſecond city of the kingdom of Leon, deſerves more particular mention.

Deſirous, from the reputation of this city, ſo much celebrated in the romances, and ſcientific hiſtory of Spain, to gratify my curioſity in ſeeing it, I made a journey on purpoſe during my firſt reſidence in Spain. The court was then at St. Ildefonſo, which is twenty-ſeven great leagues from Salamanca.

Although the Spaniards, and even the Abbé Pons, complain of the depopulation of this part of Spain, it did not ſtrike me in paſſing through it. For example, I noticed that in the neighbourhood of Arevalo twelve villages were diſcernible from one ſpot. The whole canton, notwithſtanding it be arid and poor, is nevertheleſs fertile and tolerably well cultivated; the reſult of individual poſſeſſions not being ſo conſiderable as in other parts of Spain.

After paſſing Segovia, of which, as we proceed, we ſhall ſay ſomething farther, I arrived at Santa Maria de Nieva, a town of ſix hundred chimnies, which poſſeſſes the ſingular privilege of having a bull-feaſt every year, frequented by all the amateurs of the ſport in the neighbourhood.

From the eminence on which it is ſituated, a tolerably fine country is diſtinguiſhed, of a vaſt extent, without any running ſtreams, without trees, verdure, or country-houſes,

and which only preſents one uniform tireſome aſpect, if immenſe corn-field deſerve that appellation.

After paſſing a wood of fir-trees, the land is naked, and perfectly flat. In ſpite of the drought to which it is ſubject, it is very well cultivated, even up to the gates of Arivalo, a town which formerly muſt have been a conſiderable city. Its maſſive gate leads to a bridge, whoſe ſolidity braves the violence of the floods, and ſeems to contend with time. This double monument has been deemed worthy of one of thoſe pompous inſcriptions of which the Spaniards are by no means niggard. It informs the paſſenger, that the communes for thirty leagues around contributed to the building of it. Within the walls of Arevalo one ſees with diſguſt the remains of ancient columns, on which are conſtructed miſerable huts and balconies, of wood half rotten. The clergy alone preſerve their wealth in the midſt of the wretchedneſs about them.

Beyond Arevalo, as far as Penaranda, nothing is ſeen but rich and well cultivated land. Its inhabitants, notwithſtanding, diſplay every ſymptom of indigence. Content, like the greater part of the inhabitants of the interior of Spain, with the enjoyment of the abſolute neceſſaries of life, they pay no regard to its comforts. Cut off from communication with ſtrangers, and a compariſon of their modes with better, they ſeem to be deſtitute of either a deſire for, or knowledge of, the pleaſures of life. It never occurs to the individual, that he may improve his poſſeſſions. A garden, nay, even a kitchen-garden, is an object of luxury that their parſimony denies them. Idleneſs enforces privations, and the habitude of accommodating themſelves to privations nouriſhes idleneſs. In this circle will they revolve till ſuch time as roads, canals, and more eaſy modes of tranſport, ſhall demonſtrate to them the advantages of commerce. Travellers, who judge of Spain from patterns ſuch as this, are excuſable in treating it with rigour.

One becomes ſomewhat reconciled with this canton on entering Penaranda, a pretty little town of about a thouſand chimnies. It contains many architectural remains, which ſhew it to have been formerly a place of greater conſideration.

Its inhabitants have a ſtrong reliance on a miraculous image of the Virgin. Without its patronage, ſay they, "twenty times ſhould we have ſunk under our misfortunes." Sweet illuſions, which modern philoſophy has the cruelty of ridiculing, and which, on the contrary, it might be well to encourage for the comfort of the poor, where the conſtituted authorities poſſeſs the power of preventing the abuſes of ſuperſtition! Certainly they are perfectly innocent; ſuch illuſions are even valuable, were nothing elſe the fruit of them, but nouriſhing patience and hope in the boſom of the wretched. The inhabitants of Penaranda, in common with moſt of the provinces of Spain, appeared to me to be in need of theſe reſources. Loaded with taxes, they earn moſt hardly the little which they gain, ſo that their miſery ſtifles their induſtry. Their lords, who frequently are ignorant even of the geographical poſition of their eſtates, abandon the adminiſtration of them to intendants, treaſurers, and alcaldas, who draw down maledictions on names, which might be reverenced upon cloſer knowledge of the perſons who bear them.

I ſhall not quit Penaranda without obſerving that its inn is, perhaps, the moſt commodious, and the cleanlieſt of any in Spain. A matter unuſual in this country too, I found the landlord complaiſant, and ſome eatables in the houſe.

I afterwards traverſed a diſtrict in which, I was aſſured there were droves of cows, whoſe male calves were without horns; this then appeared to me an idle tale; I give, however, more credit to it now that I underſtand Doctor Johnſon, in his return from his journey to the Hebrides, found, at Auchinleck in Scotland, ſome cattle without horns; and that, in Norway, whole races of bulls are met with of this deſcription, between Chriſtiana and Frederickſhall. When I underſtood that ſuch were met with in England,

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and, after seeing in a country house at Altona a bull of this description entirely without horns, and not apparently descending from any degenerate cast, as some travellers, who have met with such beasts, have imagined; I was led to conceive, that this singularity was not uncommon among the ancients; and did not consequently appear incredible to them, since Tacitus, speaking of the Germans, says, *ne armentis quidem honos aut gloria frontis;* "their bulls have no honours but a hornless brow*."

Whether these animals without horns exist or not in the district of Penaranda, I learned that the labourers, at least, had some means of acquiring a competency; that the greatest part of the lands were held by them under the simple condition of rendering to the proprietor about a fourth part of the crop, themselves bearing the whole expence of the culture, gathering, &c. It is consolatory to find this class of men, so valuable in themselves, sometimes reap advantage, if not from the disinterestedness, at least, from the heedlessness of proprietors; but these examples are as unfrequent in Spain as elsewhere.

From Penaranda, after passing by Ventosa, a miserable village on an eminence, I arrived at Huerta, where I, for the first time, remarked a custom, in some particulars, worthy of imitation. It was in having a board fixed at the door of the inn, whereon was described by the alcalde, the manner in which the hostess should behave to travellers, the price to be charged for lodging, the food of their horses or mules, &c. Thus far all was reasonable, but the foresight of the prescription went farther; it forbid the hostess *keeping pigs and poultry, and suffering play at certain games in her house, receiving armed men, or women of light conduct.*

It is by similar incumbrances, by which much accommodation is lost, without serving morality, that Spain, for a long time, will feel the want of good inns, and remain a dread to foreigners.

On leaving Huerta, the towers of Salamanca are distinctly seen, and not lost sight of afterwards. At a certain distance, the position of the city on the banks of the Torme is very picturesque; and, were the country somewhat more adorned, would put one in mind of Tours. Half way towards it, I passed through one of the vast pastures, called Valdios, not very frequent in Spain, but which are destitute of that beautiful verdure which is the finest ornament of country scenery. A great drove of cattle (all with horns) were there feeding in this meadow. I was now in one of the districts which supply the amphitheatres of Madrid and Valladolid. After having frequently witnessed their bloody combats, it was not without emotion, that I beheld myself surrounded by these fearful animals; but they ranged in freedom; no one provoked them; they had laid aside their ferocity. Nature has formed very few animals instinctively malevolent. Some become so, when dictated to by hunger or self-defence. Do men always wait for these powerful provocations before they manifest the rage of the irritated bull, or the fury of the hungry tiger?

On entering Salamanca, one passes at first through dirty, narrow, and ill-peopled streets. It then wears the appearance of the most wretched city in Europe; and we readily credit its population formerly so numerous, being reduced to two thousand eight hundred houses; but view with surprise, on advancing, its new square, equally remarkable for its cleanliness, and the regularity of its architecture. It is adorned by three rows of balconies, which are continued uninterruptedly; its ground-floor is formed of

* In the spring of 1800, near Altona, I again met, not with the same bull which I had seen some years before, but several of his descendants, which had horns notwithstanding his being destitute of them himself; a phenomenon perhaps not uncommon.

ninety

ninety arches, within the arches are placed the likeneſſes of the moſt illuſtrious perſons Spain can boaſt. On one ſide are ſeen, thoſe of all the Kings of Caſtile, to the time of Charles III.; in the other thoſe of all the beſt known Spaniſh heroes, ſuch as Bernard del Carpio, Gonzalvo de Cordova, and Fernandes Cortez. The arches of the eaſtern ſide are yet empty, how ſoon will they be filled?

The cathedral of Salamanca, although built in the time of Leon X., is badly imagined; however the ſtriking boldneſs of the nave, and the exactneſs with which its Gothic ornaments are finiſhed, make it one of the moſt remarkable Gothic edifices in all Spain. When further we learn that Salamanca beſides this cathedral has twenty-ſeven pariſh churches, twenty-five convents of men, and fourteen of women, one is no longer aſtoniſhed at its poverty and want of inhabitants.

From an earlier period than that of the reign of Philip II., the fame of its univerſity attracted ſtudents, not only from all parts of Spain and Portugal, but even from France, Italy, England, and Spaniſh America. The great vogue in which it was, has ſomewhat gone by, although from the new form it has received by the council of Caſtile, the univerſity of Salamanca poſſeſſes at preſent ſixty-one chairs, and a college for the Hebrew, Greek, and Latin tongues; and notwithſtanding it has even now ſome ſkilful profeſſors, who are occupied in hunting in its laſt-coverts the pretended philoſophy of Ariſtotle.

Another eſtabliſhment of more modern date than the univerſity of Salamanca, and at preſent more celebrated, is that of the grand colleges, *colegios mayores*. In Spain there are ſeven places of education of this name, four of which in Salamanca alone.

They are all of them buildings which aſtoniſh by their ſtupendouſneſs; the oldeſt, that of St. Bartolomeo has been recently rebuilt; and on account of its front and its principal court, claims the notice of architects: it contains a library rich in manuſcripts, and ſeveral learned men have been educated in it; among others Alphonſo Toſtado, whoſe immenſe erudition, and prodigious fecundity, ſerve to this time for a proverb among the Spaniards *.

Among the crowd of ſacred edifices which Salamanca contains, the church of the Dominicans, was pointed out to me as worthy of deſcription, that of San Marco, and the front of the Auguſtins.

The firſt has a Gothic front, worked with great nicety, a ſpacious nave and richly decorated † chapels; but I looked in vain for the fine paintings I had heard ſo much vaunted. The platform of the choir is painted by Palomino in freſco. In his hiſtory of Spaniſh painters, Palomino has given ſome leſſons on the fine arts. According to my conception, in his works at Salamanca, he does not appear to have joined example to precept.

Inſtead of maſter pieces of painting I was ſhown a magazine of relics. I was pathetically invited to advance my chaplet, but this characteriſtic of Spaniſh catholiciſm, I did not happen to be provided with. I was however obliged to pay my tribute of reſpect, in which I but imitated all the attendants, and to have refuſed which might have been dangerous; this conſiſted in kneeling before theſe venerated objects.

To enumerate all the ſacred treaſures that were exhibited to me would little entertain the reader; I ſhall therefore only mention the bible of the famous antipope, Bene-

* When deſirous of repreſenting the number of works of any author, the Spaniards ſay, "Ha eſcrito mas quo eſo Toſtado."—He has wrote more than that Toſtado.

† In Roman catholic Churches, the places where the Prieſts read maſs are called chapels, in large churches there are frequently ſeveral.

dict

dict XIII. who was born in Spain and depoſed by the council of Conſtance. Take care, ſaid my conductor (who was a friar) that you do not confound him with a pope of the ſame name who was a Dominican; he was a true pope. The irony of Moliere will thus ſuit all countries: *You are a goldſmith Mr. Joſſe.*

In the portal of the Auguſtins, I ſaw nothing but the ornaments with which it is loaded, that were remarkable. It fronts a caſtle or palace of the Duke of Alba, a part of whoſe domains is ſituated in the neigbourhood of Salamanca. Theſe *domains*, theſe *palaces*, ſadly feel the abſence of their lords. This reflection is excited at every ſtep you tread in Spain. So long as opulent proprietors ceaſe to vivify by their preſence their too extenſive inheritances, at leaſt occaſionally, patriotic ſocieties, manufactories, encouragements to agriculture, and a thouſand other ſalutary plans, will be but uſeleſs palliating to the evils, which for two centuries continue to undermine the Spaniſh monarchy. This is not one of the ſmalleſt inconveniencies ariſing from the deſpotiſm of an individual. The monarch attracts about him, by his favours, all ſuch as can add ſplendour to the throne, or put it in danger by a diſtant exhibition of power and pomp. Vanity requires, that all ſhould ſhine for its advantage, and by its means, and miſtruſt is apprehenſive of the luſtre that is diſtant. This was the ſyſtem of Richelieu, and this is the picture of all the kings of Spain from the time of Charles V. They have conſolidated their authority at the expence of the proſperity of the ſtate.

The remaining church which they boaſted of, is the old college of the Jeſuits given to a community of regular canons, under the name of the church of *San Marcos*. Except a magnificent portal of the Corinthian order it exhibits nothing curious. The old ſeminary of the Jeſuits was conſecrated, in 1778, to the education of thirty young eccleſiaſtics. The ceremony of their introduction is deſcribed in a picture by Bayeux, one of the moſt able ſcholars of Mengs.

Before I left Salamanca, I went to ſee an old Roman bridge of twenty-ſeven arches, which is at the end of the town, over the little river Tormes.

Seven or eight leagues from this city, and on the right bank of the Douro, is Zamora, which, notwithſtanding its being ſituated in the ancient kingdom of Leon, has, for a long time back, been the ſeat of the military government of Old Caſtile; and is not a whit the richer for it.

Laſtly, from fifteen to eighteen leagues, S.W. of Salamanca, and not far from the Douro, is a fort of arſenal, formerly in a flouriſhing ſtate, and ſituated in a territory fit for all ſorts of culture, at preſent it is in a wretched ſtate, without population, and without induſtry. Roads almoſt impaſſable, from whichever ſide you proceed towards it, veſtiges of ruined villages, and the worſt inns in Spain, ſuch are the attractions of Ciudad Rodrigo, and its environs.

This, I conceive, will be deemed ſufficient to ſay of the kingdom of Leon, in order to prevent any one from undertaking an excurſion to it. Let us now again enter the road from Burgos to Segovia.

Olmedo is ſeparated from Valladolid by eight leagues of ſandy ſoil. In all this diſtance there is no other verdure to be ſeen than that of a dull foreſt of pines, and heath.

Valdeſtillas is half way, a town conſiſting of two hundred and fifty houſes. I lodged there in 1792, at a farmer's, whoſe pride of birth would have furniſhed matter for an excellent comedy. His nobility he told me was inconteſtible; he produced the proofs of it before me, in a ſort of certificate, which his grandfather, removing from Biſcay into this diſtrict, had obtained from the chancery of Valladolid; for theſe tribunals, beſides other functions, have that of pronouncing on the validity of titles of nobility, and granting a conſequent certificate, which is called *executoria*. In each of them even there

there is an apartment in which the principal buſineſs tranſacted is of this nature, and which apartments on this account are called *Salas de hijos d'algo*, (apartments of the ſons of ſomebody,) words from which by corruption *hidalgo* is deduced, ſignifying noble. My *illuſtrious* innkeeper did not fail to inform me that at Valdeſtillas there was a ſcore of inhabitants, as much hidalgos as himſelf, but they had not *ſuch well authenticated certificates*. Notwithſtanding all this, he was not above talking to me of the revenues proceeding from the lands of his maſter, which as well as the whole diſtrict produced abundance of wines. A *nobleman*, and have another *maſter* beſides the king! Thus in Spain, as well as in other countries, vanity eaſily reunites itſelf to meanneſs. Such an event as I have deſcribed was neceſſary to engage me to mention ſuch a place as Valdeſtillas.

Olmedo is ſeated upon an eminence, in the middle of a plain, which appears almoſt unbounded on every ſide, except to the north-eaſt, in which direction are ſeen ſome barren hills. This city, which was formerly ſtrong, is ſtill partly encloſed by thick walls three quarters of a league in extent. It has very few inhabitants or manufactures, and its whole internal appearance announces decay. I have no where been more ſtruck by ſymptoms of degradation and miſery. Seven pariſhes and as many convents; ſome brick grounds and vineyards, and a few kitchen gardens under the ancient walls; theſe conſtitute all the riches of Olmedo.

From Olmedo you may go either to Madrid or Segovia, according as you take the right hand road or the left. If the former, after paſſing through ſeven or eight miſerable villages, one arrives at San-Chidrian, one of the ſtages of the diligence, and at which in 1792 I found a tolerable inn. The road, which even at that time was very bad to San-Chidrian, is afterwards moſt excellent as far as Madrid, that is to ſay, for a ſpace of fifteen great leagues; but as far as Guadarama, it runs through one of the wildeſt countries in Europe, along the thick curtain ſhaggy with rocks, which ſeparates Old Caſtile from the new. In this unpleaſant journey, before you aſcend the moſt ſteep part of theſe enormous mountains, you make a halt at a new inn, called *El Diverſorio de San Rafuel*. Beyond is the village of Vellucaſtin, where the barrenneſs of the country increaſes, and rocks are more frequent. On the top of the mountains the immenſe plains of New Caſtile are diſtinguiſhed; ſhortly after ſucceeds a turnpike, where travellers pay a toll for keeping the road in repair; deſcending then a long ſlope you reach Guadarama, where it finiſhes.

Madrid is but ſeven leagues from this place. The Eſcurial is in the road two leagues diſtant. St. Ildefonſo is ſeven leagues off, at the foot of the mountains juſt paſſed, and on their oppoſite ſide, and which project conſiderably with great ſinuoſities towards the left. Nothing announces that Guadarama is ſo near the capital, and the two reſidencies of the court. To behold the diſtance from each other, and deſtitute ſtate of the inns, one would imagine Madrid could be frequented by none but pilgrims and muleteers. But before we enter that city for a long ſtay, we will return to reſume the road to Segovia, which we ſwerved from at Olmedo.

Segovia is eleven leagues from Olmedo. The country round this city is the moſt barren, poor, and depopulated of all Caſtile. We paſs through ſome large towns, ſuch as *Santa Maria de Nievi* and Giuſti, which we have before noticed, and perceive the turrets of the caſtle of Segovia, and the ſteeple of the cathedral, at a conſiderable diſtance. The traveller ſuffers much from impatience before he arrives at this city; he has ſeveral circuits to make, with many painful and tedious efforts before he has climbed, as it were, up to the ſquare of Segovia.

As he approaches, he ſees to the right an old caſtle, built upon the ſummit of a ſteep rock; and to the left, he looks down on a valley watered by a little river from which it receives its verdure. Intent on the fine proſpects by which he is ſurrounded, he forgets the deſtitute country he has journeyed over, and which on leaving Segovia he will meet with again.

This city was formerly famous on ſeveral accounts, and notwithſtanding its dirtineſs, and the ſmall number of its inhabitants, is ſtill not unworthy the attention of the traveller. Its principal edifices are the cathedral and the caſtle or *Alcazar*.

The cathedral is a mixture of the Gothic and Mooriſh architecture. The inſide is very ſpacious and of majeſtic ſimplicity, and the great altar has been lately decorated with the fineſt Grenadian marble.

The Alcazar of Segovia, formerly the reſidence of the Gothic kings, is a well preſerved edifice. Charles III. eſtabliſhed in it a military ſchool, for young gentlemen intended for the artillery, in which their education is moſt carefully attended to. This eſtabliſhment is under the direction of the inſpector-general of artillery.

The Alcazar was for a long time made uſe of as a priſon for the crews of the Barbary corſairs who fell into the hands of the Spaniards. It was impoſſible to ſee without compaſſion thoſe robuſt Moors, condemned to a painful idleneſs, which was more irkſome to them than their captivity, and devoting themſelves to ſedentary employments, for which nature ſeemed not to have deſigned their indignant arms. They were, however, never treated with rigour, and the court of Spain has reſtored them to their country, ſince the Spaniſh monarch has formed connexions with the Emperor of Morocco.

But nothing is more remarkable at Segovia than the aqueduct.

Segovia is built upon two hills, and the valley by which they are ſeparated; a poſition which made it very difficult for a part of the citizens to be ſupplied with water. The difficulty was removed a conſiderable time back, according to the learned, in the reign of Trajan, by an aqueduct, which until this day is one of the moſt aſtoniſhing, and the beſt preſerved, of the Roman works. It begins on a level with the rivulet it receives, and is at firſt ſupported by a ſingle line of arches three feet high; it runs then to the ſummit of a hill on the other ſide of the city, and appears to become more elevated in proportion as the ground over which it is extended declines. At its higheſt part it has the appearance of a bridge boldly thrown over an abyſs. It has two branches which form an angle, ſomewhat obtuſe, relative to the city. It is at this angle that it becomes really awful. Two rows of arches riſe majeſtically one above the other, and the ſpectator is ſtruck with amazement comparing their ſlender baſe with their height. Its ſolidity, which has braved upwards of ſixteen centuries, ſeems inexplicable on cloſely obſerving the ſimplicity of its conſtruction. It is compoſed of ſquare ſtones, placed one upon another, without any exterior appearance of cement, though we cannot now be certain whether they were really united without this aid, by being cut and placed with peculiar art, or whether the cement has been deſtroyed by time. One ſees with regret the wretched houſes reared againſt the pillars of the arcades, which ſeek in theſe durable ruins a ſupport for their inſtability; in return for this benefit, degrading a monument which even time has reſpected; but theſe ſcarcely riſe to a third of the height of the aqueduct, and ſerve at leaſt to give an appearance of a greater projection to its grand and awful maſs. A ſmall ill-built convent has been erected behind the angle which forms the two branches. But what nation has not been guilty of like profanations? Let thoſe of my countrymen, whoſe indignation may be excited by this, remember that it is but lately that the amphitheatre at Nîmes has been relieved from a ſimilar outrage.

Drawn & Engraved by George Cooke

Castle of Segovia

It is needleſs to obſerve that the houſes near which this beneficent aqueduct paſſes, lay it under contribution on paying a certain duty, and that it was of the greateſt utility to the houſes, formerly much more numerous than at preſent, in which the wools of Segovia were waſhed and dyed. Theſe wools are the moſt famous of all, and will form the ſubject of the following chapter.

CHAP. III.—*The Wools of Spain.—Attempts to naturalize them in France.—Details reſpecting the Meſta.—Export of Spaniſh Wool.—Manufactures of Guadalaxara and Segovia.—Travels of the Sheep.—Shearing and waſhing.*

THE beſt wools in Spain are thoſe of the diſtricts of Segovia, thoſe of the country of Buytrago, ſeven or eight leagues eaſt of Segovia, and thoſe of Pedraza to the north, and ſtretching towards the Douro. The intercourſe which I have had as well with the people of the country as with thoſe of my countrymen *, who have reared Spaniſh ſheep in France itſelf, for a period of years, have enabled me to collect detailed accounts reſpecting them, the moſt intereſting of which I muſt beg excuſe from light readers for inſerting, as thoſe of a different deſcription will perhaps be pleaſed with ſeeing them.

In the firſt place, it is an almoſt univerſal opinion, although combated by ſeveral well informed Spaniards, that the wools of Spain do not ſo much owe their fineneſs and quality to the temperature of the climate, or the nature of the ſoil on which the ſheep are bred, as the cuſtom of driving the flocks to different parts of the country. But what proves to conviction that Spaniſh ſheep yield not only very fine wool without their periodical journies, but even far from the climate and ſoil to which the quality of their valuable burthen is attributed, is the ſucceſs of the flock which originally came from Spain, and which is under the care of Mr. Daubenton, as well as that which I was employed on the part of Louis XVI. to obtain from His Catholic Majeſty in 1785, for the park of Rambouillet; both which have conſtantly, from the period of their introduction up to the preſent time, afforded wool, which connoiſſeurs have been unable to diſtinguiſh from that of the fleeces ſheared in Spain.

The flock of Rambouillet ſuffered, but in a different manner, from the change of climate and food. Of three hundred and ſixty which I forwarded from Spain, nearly ſixty periſhed on the road, notwithſtanding the Spaniſh ſhepherds, who had the care of them, drove them very gently, and notwithſtanding they were wintered in the heaths of Bourdeaux, for the purpoſe of accuſtoming them by degrees to the climate of France; but this increaſe of mortality is the ordinary effect of emigrations from the ſouth to the north, and men are even leſs exempt from it than animals.

In the firſt year of the removal of the Rambouillet flock forty periſhed; this was attributed to the ſcab which ſhewed itſelf ſoon after its arrival. The loſs has each year

* In this number I muſt not in ſilence paſs by M. Leblanc, an agriculturiſt at Marcuil le Port, near Epernay, a Frenchman who has ſignalized himſelf by the longeſt ſeries of ſucceſs in his treatment of ſheep, and who has had the charge of forty five from Rambouillet; M. Cramayel as well, who, at his eſtate of that name, has attended very much to this ſpecies of induſtry; M. Chabert, one of the moſt ſkilful perſons of all Europe in the veterinary ſcience, who at one of his farms at Maiſons, near Charenton, keeps a flock of Spaniſh ſheep, which refute all the objections of ſcepticiſm and malevolence; but above all, thoſe ineſtimable members of the commiſſion of agriculture and arts, in the number of which I owe particular thanks to Mr. Gilbert, who had the particular ſuperintendance of the Rambouillet flock, for his intelligence, zeal, and civility. Mr. Gilbert was a man of excellent diſpoſition, and a good citizen; unfortunately for the arts, and for his friends, by whom he is much reſpected, he died laſt year. To the member above noticed may be added M. Chemilly.

diminiſhed upon that of the foregoing, if the laſt be excepted, in which nearly a ſcore of the flock has periſhed; but this mortality muſt be attributed to other cauſes, ſince it affected nearly at the ſame time almoſt all the flocks of the country, and with a greater proportionate loſs.

The Rambouillet flock, ſo well preſerved, has required no other attention than what every intelligent farmer, ſtimulated by intereſt, can afford. At firſt it was kept like thoſe of Spain, conſtantly in the open air. The influence of a change of climate then began to be diſtinguiſhable. Theſe animals, withdrawn from a warmer temperature, felt the effects of the cold, the wind, and the rain, which their cloſe and oily fleece imbibed, it is true, with difficulty, but was long in getting rid of. Without continuing any longer the experiment, their keepers haſtened to profit by what they learned, and incloſed the flock in large covered folds well aired. They had reaſon for congratulating themſelves upon the change. Some lambs died of cold in the ſevere winter of 1794-1795, even in theſe pens. This is the conſequence of a circumſtance in which Spain has an advantage over France, and which cannot be ſhared by the latter. In Spain the lambs are fallen in the month of October, whereas in our climates they fall not before January. But nothing can be argued upon an extremity of cold which does not occur more than four or five times in a century.

The change of food has not tended to deteriorate either the Rambouillet flock, or thoſe which have proceeded from it. The ſoil of the diſtricts where the Spaniſh ſheep feed, as well in Caſtile as in Eſtremadura, is in general dry and ſtony; the graſs there is fine and ſhort. It might be difficult to find a ſituation where the climate and herbage differed more from thoſe of Spain, than the diſtrict of Rambouillet. The greater part of its park is covered with wood: its ſoil is almoſt every where argillaceous, clammy, humid, and cold. It was impoſſible to have begun under more vexatious circumſtances; but the happy reſults of this firſt trial have falſified the predictions of all the cultivators of the country, and have proved that Spaniſh ſheep may be naturalized upon every ſoil. It is known that where attempts for that purpoſe have been made in Saxony, in the duchy of Wirtemberg, in Denmark, and in Sweden *, they have not degenerated; but it is in France only that theſe experiments have been followed up in ſo fortunate and general a manner, as to forebode a ſpeedy national benefit from the acquiſition of Spaniſh ſheep.

For ſome years back ſucceſs has crowned all the experiments of this deſcription made with ewes and rams†, from the ſales which government annually makes at Rambouilet. At theſe the animals have always been ſold very dear, as well as their fleece; and their

* Of this I have been convinced either from ſeeing them, or from creditable teſtimony, during my reſidence in theſe two kingdoms. At Frederickſburg, a caſtle of the King of Denmark, I ſaw a flock of the Spaniſh race which, down to the fourth generation, had not degenerated. It is true, this flock was ſelected in Spain itſelf by a Dane, well verſed in every thing relative to agriculture and the veterinary art, and is attended to by himſelf with as much care as the beſt Spaniſh ſhepherd could do; this is Mr. Nilſen inſpector of the breeds of the King of Denmark, and one of his moſt uſeful ſubjects. In Sweden I have alſo been aſſured, that ſome proprietors of lands poſſeſs flocks which they have had for years, and which proſper with nearly equal ſucceſs.

† Except this year, in which a taſte for ſimplicity, the offspring of circumſtances, a neceſſity of economy, and other cauſes more afflicting and leſs tranſitory, have ſenſibly leſſened the price of the ſheep, as well as their wool, for which the dealers offered no more than 10d. Engliſh in the greaſe, whereas in 1792 it ſold at 8 livres 10 ſous (or 7 ſhillings and 1d.), while our common wool fetched 30 ſous (10d.). As early as 1795, the dealers had combined to give no more than 100 ſous (or 5od. Engliſh); and one ſees with regret, that the perſonal advantage of the dealers in Spaniſh wool may poſſibly prove an obſtacle to the entire denizenation of Spaniſh ſheep, more difficult to ſurmount in itſelf than all thoſe of a phyſical nature.

exceſſive price is a certain guarantee of care for their preſervation. Proofs can be adduced among all the intelligent proprietors who have devoted themſelves to this kind of induſtry; a pacific victory, much more valuable than any acquiſition which could reſult from our military ſucceſſes in Spain; a victory which has been increaſed by our treaty of peace with that power, that ſecures us an additional flock of thoſe precious animals, the export of which is ſo rigidly prohibited by the government *. The only meaſure which can preſerve to France the poſſeſſion of theſe advantages has at laſt been definitively decided on. It has now been determined that the ſheep of the Rambouillet flock ſhall be freely ſold at high prices. Every other means would have been ineffectual, for Frenchmen are more the ſlaves of cuſtom than is imagined; and the country people above all are repugnant to all innovation. Rams and ewes from Spain, gratuitouſly diſtributed as they were at firſt, would infallibly have periſhed in the hands of ignorant and prejudiced men, for want of care. Theſe animals have nothing engaging at firſt ſight. Their dirty, cloſe, and curled fleece, their ſmall ſtature, their ſhape, preſent nothing, in the eyes of the ſimple inhabitants of the country, of what appears to them to characterize the beauty of ſheep. The mode of ſelling them by auction was conceived the moſt certain of all, on account of its diſperſing theſe choſen animals among connoiſſeurs, and making ſelf-intereſt an inducement to the care of them. As to intereſt, the worſt informed grazier, however obſtinate he may be, muſt ſoon be convinced that he will find it in adopting the Spaniſh breed, whether pure or croſſed. Sheep of either of theſe deſcriptions aſk no more care than what the common ones of the country require, to be preſerved healthy, and in good condition. The ſame climate, the ſame ſoil, the ſame food, ſerve for one as well as the other; they exact only a little more cleanlineſs, on account of the greater cloſeneſs of their fleece, and its being more oily; and yet the wool of them ſells for almoſt double the price of that of the other, and the fleece is as heavy again. It is well known that the common weight of the fleece of one of our ſheep is from three to four pounds †; that of the Spaniſh breed, whether pure or croſſed, is ſeven or eight. Some well authenticated examples prove the extreme difference between the weight of the fleeces of our ſheep and that of the Spaniſh breed. At his laſt ſhearing M. Hamerville, of the neighbourhood of Bourges, met with a fleece in his Spaniſh flock which weighed eleven pounds and a half; and this year, at Maiſons, near Charenton, I kept one myſelf which weighed nearly twelve pounds; and yet it was not from a ſheep purely Spaniſh, but from a breed of the third croſs. The proprietor of this flock has even had two rams of an unmixed breed, which for three years together yielded thirteen or fourteen pounds of the fineſt wool, poſſeſſing, if not a perfectly equal fineneſs, at leaſt all the elaſticity, and every other good quality of Spaniſh wool.

A double profit is certainly thus afforded to the farmers who renounce their prejudices. There can be no reply to ſuch arguments.

There are few departments into which this Spaniſh breed has not been introduced. Since their obtaining a high price they ſucceed every where, on account of their value

* Divers obſtacles have retarded for three years the completion of that article of the treaty of Baſle, by which the King of Spain allows the exportation to France of ſix thouſand ſheep in the courſe of ſix years. It was not till 1798 that Mr. Gilbert was diſpatched to be preſent at the purchaſe and ſelection of a part of the ſheep ſtipulated for. He ſunk under the fatigues of this voyage, as toilſome as it was uſeful. Nothing now remains but to follow the road he had chalked out. I learn that a ſociety, authoriſed by government, has recently taken upon itſelf to export, at its own expence, four thouſand Spaniſh ſheep, part of thoſe which the treaty of Baſle guaranteed to us.

† I do not here include certain diſtricts where it is well known ſheep of a very poor deſcription yield from ten to twelve pounds of wool.

inſuring

inſuring thoſe cares which animals removed from their native fields imperiouſly demand, of whatever ſpecies they may be. That part of France whoſe climate and paſtures appear to be moſt congenial to Spaniſh ſheep, (Rouſſillon), is preciſely that in which there are none *; doubtleſs becauſe its inhabitants are not aware of the profit they bring. Experience and time perhaps will teach them better.

But it will be aſked, do theſe tranſplanted ſheep, do their deſcendants of the pure race yield a wool equally fine as in their native country? In order to anſwer this queſtion faithfully which Spaniards may propoſe in ſpite, and Frenchmen with diſtruſt, we will frankly confeſs that our government, twelve years ago, cauſed Van Robais, of Abbeville, to manufacture the wool of a ſmall flock of the Spaniſh breed which was at the veterinary ſchool; that the cloth when made was as handſome and fine as could be, yet did not poſſeſs altogether the ſoftneſs of Spaniſh wool. This experiment is perhaps the leaſt favourable one of this deſcription which has yet been made, ſince from every other it has been demonſtrated that if the French wool is not altogether ſo ſoft as that of Spain, it is yet equally fine, and has increaſed ſomewhat in length, without loſing its principal quality, and this length renders it very fit for the warp. To ſum all, the ſamples preſerved annually ſince the arrival of the Rambouillet flock, are ſufficient to ſatisfy the moſt incredulous, that in the courſe of fifteen years it has experienced no change whatever.

Nor let it be ſaid that fifteen years are inſufficient for determining that the wool of the Spaniſh flocks tranſplanted into France will not in the end degenerate. For if a degeneracy be to take place, the firſt appearance of it would have ſhewn itſelf after ſuch an interval. Moreover, the flock of M. Daubenton deſtroys all doubt, ſince it has maintained itſelf in its priſtine purity for more than thirty years upon the moſt ungrateful ſoil; and this ineſtimable agriculturiſt has publiſhed certificates of our moſt celebrated manufacturers, which atteſt that having employed without diſtinction wool coming direct from Spain, and that from his flock, they had *abſolutely found no difference whatſoever*. M. Leblanc, of Marcuil le Port, aſſured me, at the cloſe of 1796, that for ten years that he had manufactured the wool from the unmixed Spaniſh breed, deſcended from that of Rambouillet, the workmen he employs diſtinguiſh nothing more between this and that ſent from Spain, than that the latter is in a trifling degree ſtouter. And let us as we proceed remark, that this very ſlight inferiority of ſoftneſs in the wool, is perhaps the only conſequence reſulting from the change of climate, this quality being principally aſcribable to the great tranſpiration excited by the temperature of Spain, and which generates the very unctuous oil with which the wool of the ſheep is impregnated in that country.

Moreover, it is not thoſe ſheep brought from Spain, or deduced from purely Spaniſh breed alone, which give theſe reſults. Thoſe which proceed from the croſs with the French breed at the fourth generation, and even ſometimes earlier, produce as fine wool as ſuch as are entirely of the Spaniſh breed, provided the males which are conceived of the mixed breed be either kept apart or ſpayed, and the female croſs be employed with rams of the pure race only, for it is demonſtrated that the ram has influence double that of the ewe upon the produce of propagation; provided further that theſe delicate animals be not confined to narrow, low, or cloſe pens; and, laſtly, that they be intruſted to vigilant and intelligent ſhepherds, ſuch as that of M. Chabert, at Maiſons, who affords a model deſerving of imitation in this reſpect. It ſeems, be whatever part of France it will in which ſheep are thus taken care of, and thus croſſed, the

* This was the caſe at leaſt in 1797.

reſults

reſults are the ſame. Government for ſome time back maintained a flock at Sceaux, purpoſely deſigned for comparative experiments upon the croſſing of rams of the pure Spaniſh breed, with ſheep of the different departments. But theſe experiments have not yet been ſufficiently numerous to ſerve as a baſis for poſitive aſſertions. All that can be poſitively affirmed is, that the Spaniſh breed croſſed with ſheep of the coarſeſt wool, yield at the lateſt at the fourth generation produce equal to the pure race; that if the pure breed be coupled with large ſheep of a great fleece, the produce is the longer in arriving at the deſired degree of purity, but at length is better furniſhed with wool; and that if it be croſſed with ſheep of fine wool, ſuch as thoſe of Rouſſillon, Sologne, and Berry, ſuperfine fleeces are ſooner produced, but are not ſo heavy.

Thus it is ſufficiently evident, that the famous quality of Spaniſh wool does not depend excluſively on the ſoil or climate of that country, no more than that the wandering ſheep, called *Tras Humantes*, or *Ganado Merino*, receive the benefit which is aſcribed from their travelling. The Spaniards have no occaſion to ſeek the proof of this ſecond truth in our fields, they are themſelves in poſſeſſion of it. It is beyond diſpute, that in Eſtremadura there are flocks which are never driven to any other place, the wool of which does not perceptibly vary from thoſe which are kept travelling. It is equally true, that, in the neighbourhood of Segovia, there are ſmall flocks which never leave it, and whoſe wool is as beautiful as that of thoſe which do. I have been aſſured by the people of this diſtrict, that of the twenty thouſand arrobes of fine wool grown there, near a third was produced by the ſtationary flocks *.

To what then is the practice of driving theſe millions of ſheep all over Spain to be attributed? To what but that which tends to cauſe, to propagate, and conſolidate abuſes, the perſonal intereſt of the powerful, which has engendered the ruinous privileges of the Meſta in Spain.

This is a company of great proprietors of flocks, compoſed of wealthy religious communities, grandees of Spain, and opulent individuals, who find their account in feeding their ſheep at the expence of the public in every ſeaſon of the year; and who, by impolitic laws and regulations, have given ſanction to a cuſtom which neceſſity firſt eſtabliſhed.

The mountains of Soria and Segovia, condemned to ſterility by the climate, ſoil, and the ſteepneſs of their ſides, were formerly the aſylum of ſome neighbouring flocks. At the approach of winter, their temperature was no longer tolerable. Theſe delicate animals ſought, in the circumjacent plains a milder air. Their maſters ſoon changed this permiſſion into a right, and formed a company, which was augmented by the addition of others, who, having acquired flocks, were deſirous of enjoying the ſame privileges. The theatre was extended in proportion as the actors became more numerous; and, by degrees, the periodical excurſions of the flocks were extended to the plains of Eſtremadura, where the climate was more temperate, and paſturage in plenty. When the abuſe began to appear intolerable, it had already taken deep root, and affected the intereſt of the moſt powerful citizens. The conſequence is, that, for more than a century, there has been a continued ſtruggle between the company of the Meſta, on one part, and,

* In the ſixteenth century the travelling ſheep were eſtimated at ſeven millions; under Philip III. the number was diminiſhed to two millions and a half. Uſtariz, who wrote at the beginning of this century, made it amount to four millions. The general opinion is, that at preſent it does not exceed five millions. If to this number the eight millions of ſtationary ſheep be added, it will make nearly thirteen millions of animals, all managed contrary to the true intereſts of Spain, for the advantage of a few individuals. For the proprietors of ſtationary flocks alſo have privileges, which greatly reſemble thoſe of the members of the Meſta.

on the other, the Eſtremenos, or inhabitants of Eſtremadura, who have all friends to the public good on their ſide.

In fact, how can they view with patience the millions of ſheep, *tras humantes*, which fall from the mountains of Old Caſtile upon the plains of Eſtremadura and Andaluſia in the month of October, returning in the month of May; and which, in coming and going, feed along the whole of the road in every commune; while the ordonnances of the Meſta allow them a breadth of road of ninety varas (about eighty yards), and, while the paſtures which await them are let at a moderate price, an augmentation of which has been for a long time ſolicited in vain. In ſhort, this unfortunate Eſtremadura, which is fifty leagues long by forty wide, and which might furniſh ſubſiſtence for two millions of people, ſcarcely contains a hundred thouſand houſes; and this want of population can be attributed to nothing but the ſcourge of the Meſta; ſince the provinces which are not ſubject to ſuch dreadful privileges, ſuch as Gallicia, the Aſturias, Biſcay, and the mountainous country of Burgos are well peopled.

This crying abuſe has been attacked by many enlightened Spaniards, as well of our time as of former ages; by Lerucla, Uſtariz, Arriquabar, even by that humorous philoſopher Cervantes, who, under the veil of pleaſantry, has given ſuch wiſe leſſons to mankind, and to his fellow-citizens, and much more recently by Don Antonio Ponz, by Count Campomanes, &c. &c. Their voice has been "a voice crying in the wilderneſs." This abuſe does not even depend on the credit of powerful people alone, it is a conſequence of idleneſs, and miſconceived intereſt, which prefers the grazing of ſheep to agriculture. Within a century wool has doubled in price, whereas grain, the culture of which is ſo toilſome, and ſo precarious, has very little increaſed in value. Ten thouſand head of ſheep will yield, *communibus annis*, two thouſand arrobes, or five hundred pounds of wool, at the rate of five pounds per fleece. And rating the arrobe at no more than 100 rial, or 25 livres Tournois, theſe ten thouſand ſheep will produce about 50,000 franks, or £2000 ſterling; from which, it is true, the coſt of their food is to be deducted, the expences of their travelling, the rent of their winter grazing, the wages of the ſhepherds, and other incident expences; but which yet leaves a net profit of ſufficient amount to render this ſpecies of property highly valuable.

As to the practice of driving the ſheep to different paſtures, beſides its being ſanctioned by law, and long cuſtom, it is not only excuſable, but rendered neceſſary by circumſtances. Either the number of ſheep muſt be diminiſhed, or ſome muſt travel a-field. Thoſe which, during ſummer, find paſture on the mountains of Soria, Cuenca, Segovia, and Buytrago would die of hunger, if left there in winter; and where can they find a better aſylum than in Eſtremadura, a province badly peopled, not opulent, and whoſe paſtures are its only reliance? I am well aware that this argument may be looked upon as begging a queſtion; but, up to this time, government has been willing to look upon it as concluſive.

Others excuſe the *meſta* from that long endurance which perpetuates a ſyſtem. He who reaſons thus would be ſcrupulous, however deſpotic his nature, of infringing on the property of the proprietors of flocks by violent reforms. And how is it to be expected, that they ſhould be prevailed upon to renounce voluntarily a benefit, the management of which is neither very complicated, nor very expenſive; the produce of which (nearly certain) finds an almoſt inexhauſtible demand, from the avidity with which Spaniſh wools have hitherto been bought by manufacturing nations? Beſides, the exchequer is intereſted in the maintenance of this branch of trade; for the duties which are paid on the export of wool, form an important branch of its revenue. Latterly it has amounted to from twenty-ſeven to twenty-eight millions of rials. A government will

will ſcarcely conſent to dry up a ſource of ſuch benefit without having a ready ſubſtitute.

There is a ſlower, but a more certain mode of obliging Spain, in ſpite of herſelf, to diminiſh this innumerable hoſt of animals, which devour her, if I may uſe that expreſſion in ſpeaking of an animal, whoſe name alone imparts ideas of innocence and peace. It is that which France is about adopting whoſe ſucceſs may induce other nations to follow her example, which have hitherto imagined that they were obliged to have recourſe to Spain for wool. Then will the covetous and idle proprietors of theſe immenſe flocks feel themſelves obliged to employ their capitals in a different manner, in one leſs lucrative to themſelves, but more advantageous to their county. Fortunate will it be for Spain, if, calculating on the conſequences of this ſpecies of revolution, ſhe prepare her territory beforehand for its new deſtination, by increaſing and perfecting her roads, her canals, and the other modes of vivification in which ſhe is deficient.

In the preſent ſtate of things, that in which they are likely to continue for a long time, wool forms one of the principal ſtaples of Spain. Before the war of 1793, the common exportation at Bilboa was annually from twenty to twenty-two thouſand bales, of from two hundred to two hundred and fifty pound weight; and from St. Andero about a third part of that quantity. Theſe are the two ports at which incomparatively the largeſt part of the wool of northern Sain is ſhipped. If we are to judge from the year 1792, England is the country which receives the moſt, and Holland the next largeſt quantity, France only ſtanding in ſucceſſion. That year there was exported,

	From Bilboa,	From St. Andero,
for England, - -	16,176 bales,	- 4,678 bales,
for Holland, - -	6,180 -	- 1,909
for Rouen, - -	1,186 -	- 1,200
for Oſtend, - -	654	
for Hamburg, -	356	

But the year 1792 ought not to ſerve as a guide. At that epoch, the commerce of France already began to feel the effects of the Revolution, and the war which began in the month of May. Commonly the export to France amounted to nearly four times as much, or about eleven or twelve thouſand bales, that is to ſay, more than half the quantity exported from the northern harbours. If theſe bales be valued at no more than 1,400 rials per hundred, (the average price of 1792, when ſuperfine *Leoneſe* was worth 18 to 1900 rials, and the commoneſt 1100 to 1150,) and the bale be rated at two hundred; it follows, that the common annual importation of France, before the Revolution, amounted to upwards of 32,000,000 rials *.

Our manufactories of Louviers, Elbœuf, Rheims, Abbeville, and Sedan, particularly that of Duretot, could not do without Spaniſh wool; the wool of Champagne and Berry, of which their conſumption is conſiderable, ſerving only when uſed by themſelves for common cloths, a part of it alone being uſed in the others. Some cloths, caſſimires for example, are wove purely of Leoneſe, and admit of no admixture whatever. If, then, France ſhould ſucceed in extending the propagation of the Spaniſh breed ſo far as to render unneceſſary the importation of wool, it will be freed from an annual contribution

* As in this computation every thing is taken at the loweſt, ſince ſuperfine Leoneſe is the quality of wool, of which the largeſt quantity is exported, and many of the bales weigh two hundred and fifty pounds, it may be deemed not too much to add a fourth part to this ſum of thirty-two millions, which will agree with the account of the balance of trade, furniſhed by Mr. Flandrin; by which it appears, that, in 1782, we received Spaniſh wool to the amount of 13,600,000 livres. See *Flandrin ſur l'Education des Moutons*, p. 213.

of 12 to 13 millions. Let us hope, that the birth of public ſpirit among the inhabitants of the country will find in this a ſufficient incentive for directing the attention of agriculturiſts to this improvement, ſeparate from the immediate advantage ariſing to themſelves from a branch of induſtry, which, it is true, exacts care, but which requires few expenſive advances; which, without detracting any thing from the value of the land, exhibits a means of reaping a crop, which does not grow from its boſom, and of which crop almoſt the whole is profit. Let us now turn to what relates to Spaniſh wools, where Spain alone is concerned.[1]

Of them ſhe is capable of exporting 32 to 33,000 bales, of from 200 to 250 pounds weight. The exportation of 1792, through the ports of Bilboa and St. Andero, was to that amount, without including five or ſix hundred bales of lamb's wool in the greaſe; for now almoſt all the Spaniſh wools are waſhed before exported. Before the increaſe of the duties on wools in the greaſe, which took place in 1787, almoſt all the lamb's wool of the Leoneſe, Segovian, and *Sorius Cuballeros* ſhearings were ſhipped in the greaſe, and amounted to about 1800 to 2000 bales, of eleven or twelve arrobes each, (297 to 324 pounds).

For theſe thirty years back, the neceſſities of the exchequer, and the perſuaſion that foreign nations could not do without her wool, however high its price, have cauſed a ſucceſſive augmentation of the export duties.

Between 1766 and 1787, theſe duties were increaſed from 42 rials 12 maravedies per arrobe for cleanſed wool to 66 rials 28 maravedies, and from 21 rials 6 marav. per arrobe, for wool in the greaſe, to 50 rials 4 maravedies.

In ſpite of theſe ſucceſſive augmentations, the exportation of wool has rather increaſed than diminiſhed. It is one, but not the principal cauſe, of the dearneſs of cloth, the chief being the greater price of the ſtaple itſelf. Within theſe thirty years the value of wool in the greaſe has increaſed, the ſuperfine Leoneſe from 75 to 80 rials per arrobe; and thoſe of an inferior quality from 100 to 120 rials: notwithſtanding this, the demand of the manufacturing nations has not diſcontinued; on the contrary, at the concluſion of the war which began to convulſe Europe in 1792, the exportation appeared to be greater. It is at Madrid, although at ſo conſiderable a diſtance from the center of the fine wool country, that the moſt extenſive dealings in this article take place. In this capital are four or five houſes employed in it. They buy up the ſhearings of the flocks in advance of ſeveral years together, of thoſe proprietors who poſſeſs the beſt *; but it is not every Spaniſh houſe that poſſeſſes either the neceſſary capital, or the courage to enter into ſuch ſpeculations; and by far the greater profit is left to the adventurers of the commercial nations. The French, the Engliſh, the Dutch, fetch Segovian and Leoneſe wool from Bilboa and St. Andero, and do not even leave the Spaniards a commiſſion upon the ſales, buying the wool, when in the cuſtody of the ſhepherd, and waſhing it themſelves. The Dutch, in particular, purchaſe, in this manner, a very large proportion; not that they themſelves manufacture the whole of the wool they export, but to enable them to ſupply thoſe who reſort to them under a certainty of being accommodated to their liking. They pay in money for the wool which they have to ſhear, and give long credits to thoſe who apply to them to ſelect what may ſuit. The manufacturers of Viviers and Aix la Chapelle have endeavoured, in vain, to lay aſide their interference, and ſupply themſelves directly from Spain; in the attempt they ſubjected them-

* The Duke de l'Infantado, for example, made a bargain in 1791, by which he diſpoſed of the produce of his ſhearings for eight years to come, for the ſum of 100,000 piaſtres. The company of the Gremios, in particular, ſpeculate conſiderably in this article. On the return of peace, it poſſeſſed nine hundred bales, which it found great difficulty in diſpoſing of.

ſelves to the greateſt inconvenience. They were diſpleaſed with the wools which were ſhipped to them. They had diſputes about the price, and the credit, which they inſiſted on having extended to fifteen months, and finally ended in reſuming their old plan.

Notwithſtanding all the ſtatements we have collected, it is difficult to aſcertain with nicety the quantity of fine wool annually ſhipped from the ports of Spain, including Seville, at which that of the ſouthern provinces is exported. In 1790 I was aſſured that it exported to the amount of 60 millions value in rials. The following calculation may ſerve to ſhow that this quantity is even leſs than the truth.

Be it allowed, that no more be ſhipped from Bilboa, than 22,000 bales, nor than 8,000 from St. Andero: to them let the 4,500 bales be added, which are exported by Seville; collectively theſe will form a total of 34,500 bales. Thoſe rated at no more than 200 lbs. per bale, yield an amount of 6,900,000 lbs. which at the low price of 10 rials per lb. give the ſum of 69 millions of rials. In this computation, every thing is taken at a low rate, particularly the price of the pound of wool, ſince in 1792 ſuperfine Leoneſe obtained 1886 rials, and common 1150 rials the hundred weight, conſequently the former coſt more than 18, and the latter more than 11 rials per lb. We ſhall therefore keep much within compaſs in eſtimating the value of the annual exports of wool at 80 millions of rials at leaſt *. Will France continue to be one of the principal importers, and take annually, as before the rupture between the two powers, her 10,000 bales? Doubtleſs; for ſhould the plan ſhe has adopted become eſtabliſhed, ſhould certain intereſted views no longer oppoſe its progreſs, ſhould the calculations of avarice among the French be ſtifled by a love for their country, prejudice will yet for a long time prevail over reaſon, and cuſtom over intereſt among the farmers. Yet ſhould this change univerſally prevail, would Spain be the loſer in proportion to the acquiſition of France? Certainly not. This revolution in her political economy, produced by degrees, would neceſſarily conduce to improvement, and the adoption of regenerating plans. Proprietors, pampered hitherto from the eaſy manner of their acquiring wealth, and ſome rich individuals would ſuffer without doubt, but the maſs of the nation could not fail to gain by it.

Spaniards, allies, look not then with a jealous eye on the fortunate experiments we are making, to do without your wool! As yet we are far off our aim, and years muſt roll before it can be effected. Continue to truſt to that verſatility, of which the revolution has not cured us. Continue to truſt to the ſtrength of root, which prejudice has taken in the country; and if ultimately you ſhould loſe us, as purchaſers, reflect that the loſs, with which you are threatened, does not create concern among thoſe of your citizens, who are the beſt informed on your real intereſts †. Two of the moſt enlightened

* A more nice computation than what is here exhibited by Mr. Bourgoanne might have been adopted by him. In the courſe of the work he lays before the reader, the ſtatements made by Lauren, the Spaniſh miniſter in 1789, by which it appears, that the duties collected on the wool in the year 1787 amounted to 27,449,246 rials, and a few pages paſt he mentions that the duty per arrobe was for wool waſhed from the greaſe 66 rials 28 maravedies Conſequently, ſeparate from what might be ſmuggled out; and taking for granted, (which would not be entirely the caſe,) that none was exported but what paid the ſuperior duty, the entire quantity will ſtill have been upwards of 400,000 arrobes which at 1600 rials per 100lbs. will give 160,000,000 of rials, or near 2,000,000*l.* ſterling. However large this may appear, it is leſs than half the value of her exports in this article ſince 1787. *Tranſlator.*

† I am ſorry that a Spaniard whoſe opinions are worthy of reſpect ſhould think differently. I have been told that a French land owner to whom a detachment of the Rambouillet flock had been forwarded under the guidance of one of the Spaniſh ſhepherds, having brought this man to Paris after the lapſe of a year, and thinking it a duty to preſent him to his ambaſſador, was very coolly received and obtained for anſwer to

lightened miniſters of this century, Campillo, under Philip V., and La Enſenada, under Ferdinand VI., conſidered your immenſe export of wool, as one of the greateſt obſtacles to your induſtry; for as they obſerved, the people who receive it, return it manufactured, and ſell it back at a high price; while thoſe of an inferior quality, which remained in Spain, are manufactured there at a great expence; your manufacturers indemnifying themſelves, by the dearneſs at which they ſell their goods, for the ſmall quantity of wool left them to make into cloth. Finally, many well informed perſons among you imagine, that by our concurrence towards cauſing a diminution of your too numerous flocks, we rather acquire a claim to your gratitude, than merit your reſentment.

Let it not, however, be conceived that Spain does not draw ſome advantage, even at preſent from her wools, in a manufacturing point of view. For a long time all low wools are worked up at home for the cloathing of the troops, and the common people; and the exportation of them is forbidden.

By much the greater part of the ſheep, which furniſh this kind of wool, are black, and the cloth is left of the colour of the wool. Hence the great number of brown cloaks, which add to the ſad and dirty appearance of the inhabitants of the country, particularly of the two Caſtiles. There is as well wool of a ſecondary quality, ſuch as that of Valencia, the export of which is not forbidden, which is employed in the French manufactories in Languedoc, but which for the moſt part is worked up in the country, where it is grown. Fine wool alſo is uſed in ſeveral diſtricts of Spain with great ſucceſs, and particularly in the manufactory of Gaudalaxara. Whimſical occurrence! its exiſtence is due to two foreigners, who made a rapid fortune in Spain.

It was Cardinal Alberoni, who founded this manufactory in 1718, and gave the management of it to Ripperda. At firſt cloths of a ſecond quality only were made here, notwithſtanding wool from the beſt diſtricts was uſed. Under Charles III. the manufactory of San Fernando, at which ſuperfine cloths only were made, was removed to Guadalaxara. Guadalaxara then had two manufactories of fine cloth.

This eſtabliſhment in 1783, was one of the moſt complete that can be conceived. It had within itſelf every thing neceſſary for perfecting the manufacture of cloth, and all the inſtruments and tools which are uſed in it were made upon the ſpot. It had eighty looms for cloths of the firſt quality, properly called San Ferneandos; one hundred for thoſe of ſecond quality, and five hundred and ſix for ſerges, by means of which they hoped in time to do without recourſe to England, to whom, for the ſingle article of woollen cloths Spain annually pays 2,000,000*l.* Theſe looms, collectively diſtributed in two buildings, gave work to 3825 perſons, all paid by the King, without reckoning a much larger number, diſperſed among the fields of La Mancha, and the Caſtiles, and employed in ſpinning the wool deſigned for Guadalaxara. Except in what regarded economy, the want of which has been repaired, it would be difficult to meet anywhere with a manufactory better organized. Guadalaxara conſequently offers a ſtriking contraſt with the towns about it. I did not obſerve one beggar, one idle perſon among the 15 to 16,000 inhabitants, of which it is compoſed. Manufactories, and particularly that of cloth, have many minute operations, of which children, old men, and infirm people, are capable. They are a ſupplement of labour, furniſhed by the arts for the advantage of feeble or ſuffering humanity, to nature condemned without to languiſh, unſerviceable itſelf, and burthenſome to others.

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the thanks he gave him as repreſentative of the court which had beſtowed this benefit on France; "*No thanks to me, Sir; for if I had been conſulted, never ſhould a ſheep of our country have gone from Spain to France.*" I did not in this anſwer recognize M. D'Arandu. *He* was from habit more alive to the true intereſts of his country; and above any paltry national jealouſy.

Theſe manufactures have experienced many changes ſince 1783, according to who had the ſuperintendance of them. Valligio, one of the laſt ſuperintendants, made ſome uſeful although expenſive additions to them. His ſucceſſor, Don Santjago Romero, pays leſs regard to ſhew than utility. He has uſed means to ſecure a ſale for the cloths, and to cauſe them to be manufactured ſo as to ſuit the taſte of the conſumers. The Spaniards already vie with Abbeville in their own eſteem, and do not greatly flatter themſelves. But will it be believed, although they have their wool from 25 to 30 per cent. cheaper than us; although there be a ſufficient population about theſe manufactories; although there be no want either of wood or water, their cloths were notwithſtanding, at leaſt previous to the war, even dearer than ours*?

It muſt however be confeſſed, and unprejudiced Spaniards allow, that their manufacturers have yet ſomewhat to learn in dyeing and fulling their cloths. But when, as is the caſe with them, the materials are not wanting, a few hands, ſkilled in thoſe branches, are ſufficient to perfect many manufactories. Government is watchful to procure them. All theſe arts of ſeduction, which rival ſtates mutually endeavour to make abortive, but which they tacitly agree in overlooking, have been employed by the court of Madrid to decoy ſuch workmen, and ſkilful artiſts, as are ſtill wanting to the national manufactures, from England as well as France. Towards the end of 1784, I diſcovered that a manufacturer of one of our towns, whom I ſhall not be ſo indiſcreet as to mention, ſuffered himſelf to be ſeduced by the Spaniſh government, which offered him 160,000 piaſtres towards eſtabliſhing a manufactory of cloth in Old Caſtile, and for bringing a hundred families from his country for the purpoſe of working it. No doubt the project was unſucceſsful, as upon my ſecond journey into that country I could find no trace of it. About the ſame time two of our artiſts (whoſe names I ſhall mention with pleaſure) *Quatremire d'Iſſonval* of the Academy of Sciences, and *Chardron* a manufacturer at Sedau, received ſimilar propoſitions, and rejected them. I have ſince heard that ſimilar attempts have been made in England, and not without ſucceſs.

The Spaniards have, however, now among them ſome ſkilful perſons, capable of giving their cloths the higheſt degree of perfection. Such is *Don Gregorio Garcia*, who has the direction of that manufactory, eſtabliſhed by the Miniſter *Lerena* at Valdemoro, the place of his birth, ſituated between Madrid and Aranguez, and one of his pupils, *Don Pedro Ciuſta*, a munufacturer at Segovia.

Guadalaxara is the only place in Spain, where the famous Vigonian wool is manufactured, the precious produce of Peru, brought to Spain by the way of Buenos Ayres, and which is met with in no other country. In France they have endeavoured to manufacture this wool, and thoſe who have compared the cloth with the Spaniſh, agree that the French has better face, but theirs a greater conſiſtency, either becauſe the Spaniſh workmen underſtand the manufacturing of it better than the French, or becauſe the beſt qualities of wool are reſerved for their own uſe Very few cloths, however, of this deſcription of wool are made even among the Spaniards themſelves, nor is there a poſſibility of getting them, without their being ordered ſeveral months beforehand. Some are worked on account of the King, who makes preſents of them to different Sovereigns. In 1782 Charles III. ſent 20 pieces to the Grand Segnior, on the occaſion of a treaty

* Charles IV., who viſited the manufactories in 1791, found there 300 looms for fine cloths of firſt and ſecond qualities, and 350 for ſerges. They afforded employment to 24,000 perſons within and without the city, and manufactured cloths annually to the amount of from 13 to 14 millions of rials. The fineſt and deareſt cloths on account of their colour, but of the ſecond quality, ſold at 84 rials the vara; the ſuperfine San Fernandos at 94; thoſe of Brihuega at 74 and ſerges at 13. The vara compared with the French ell is as 5 is to 7.

concluded

concluded between him and the Porte. It was obſerved at the time, that Spain would not be ſorry to give the Turks a taſte for their cloths. But is it likely that Spain ſhould attempt to rival nations, who, in poſſeſſion of long continued trade, an almoſt inſurmountable bar to ſucceſs in itſelf, have in addition an advantage over her in their ſuperior knowledge in the art of manufacturing? Will ſhe not deem it more prudent to labour beforehand at anſwering from her looms the demands of two-and-twenty millions of men ſubject to her ſway; but ſhe knows herſelf to be yet far diſtant from ſuch a ſtate of proſperity. It is not by the methods tried in 1783 that ſhe will make any progreſs towards it. The director of the royal manufactories could then pitch upon no expedient to get rid of a ſtock of cloth, of about 200,000 piaſtres value, without loſs to the concern, than by obtaining a decree, forbidding the exportation of all foreign cloths to South America. This decree drew upon the government numerous reclamations on the part of England and France, as well as thoſe Spaniſh merchants who had large ſtocks of foreign cloths. The edict was modified. It could not fail of being nugatory, from the neceſſity that exiſted of rendering it ſo, and neceſſity is ever fertile in fraudulent reſources.

On the return of peace, the manufactures of Guadalaxara, and Brihuega, a town ſituated four leagues from the former, and which has a hundred looms employed on fine cloths, were in a flouriſhing ſtate, and found a more ſecure conſumption for their produce. In the courſe of 1796 they had a warehouſe at Madrid, which vended from 9 to 10,000 pieces per month.

Segovia, famous at all times for the excellence of its wool, was formerly not leſs ſo for the perfection to which its numerous manufactures were carried. How fallen from its ancient ſplendour!

The patriotic ſociety of that place pretends, that at its moſt brilliant period Segovia had 600 looms employed on fine cloths. In 1697 it had no more than 250. Until towards the middle of the 18th century they encreaſed. In 1748 it had 365 looms, which gave employment to 4300 perſons, and conſumed 50,000 arrobes of wool in the greaſe. Latterly, government has been greatly, perhaps too much, occupied in regenerating its manufactures: for in 1785, it eſtabliſhed regulations in organizing them, the conſequences of which were, that for the five ſubſequent years there was an annual diminution of 4000 of the pieces worked. The cauſe of this was the nature of the Segovians, ſo much bigoted to cuſtom, and adverſe to all innovations.

One, and one only, did juſtice to the encouragement of government. *Don Laureano Ortiz*, in 1779 eſtabliſhed a new manufactory of ſuperfine cloths, to which the King gave aſſiſtance, by granting certain privileges, by no means injurious to the other manufacturers. It ſhortly began to proſper. In 1786 it kept 70 looms at work, and employed 2800 perſons. Ortiz has made this an unalienable property in his family. His country loſt him in 1788, but his ſucceſſor has inherited his zeal and his talents; and in 1792 I convinced myſelf that the manufactory had not fallen off. The manufactory of Ortez, with that called de San Fernando, at Guadalaxara, are the only ones in Spain at which ſuperfine cloths are made, a matter of aſtoniſhment in a country which produces in ſuch abundance the fineſt wool in Europe.

Before we leave Segovia, we will finiſh what there is to ſay on Spaniſh ſheep. It is in the mountains adjoining this city, that a great part of the travelling flocks graze during the ſummer. They as well as thoſe of the mountains of the ancient Numantia (Soica) leave them in the month of October, paſs over thoſe which ſeparate the two Caſtiles, croſs New Caſtile and diſperſe themſelves in the plains of Eſtremadura and Andaluſia. Such as are within reach of the Sierra-Morena, go thither to paſs the winter: the length

of

of their day's journey is in proportion to the paſture they meet with. They travel in flocks from a thouſand to twelve hundred in number, under the conduct of two ſheep-herds; one of whom is called the *Mayoral*, the other the *Zagal*. When arrived at the place of their deſtination, they are diſtributed in the paſtures previouſly aſſigned them. They ſet off on their return in the month of May; and whether it be habit or natural inſtinct that draws them towards the climate, which at this ſeaſon becomes moſt proper for them, the inquietude which they manifeſt, might, in caſe of need, ſerve as an almanack to their conductors.

Each flock, belonging to one proprietor, is called a *cavana*, and the collection of the ſhearing of one of theſe flocks is called pila or pile. They take the name of their proprietors. The moſt numerous *cavanas* are thoſe of Bejar and Negretti, each of which conſiſt of ſixty thouſand ſheep. In that of the Eſcurial, one of the moſt famous, there are fifty thouſand. Prejudice or cuſtom gives a preference to the wool of one cavana over that of another. Thus, for inſtance, no wools except thoſe of the *cavanas* of Nigretti, the Eſcurial and Paular, are made uſe of at Guadalaxara.

In 1785 the rams and ewes, which were ſent to Rambouillet, were, as may be imagined, ſelected from the choiceſt *cavanas*, and the following were choſen in addition to the three we have before mentioned, thoſe of the Marquis d'Iranda, the Marquis de Perales, Manuel de Balbuena and the Count de San Rafael. Among theſe *cavanas* that of St. Paulur is reckoned to produce the fineſt wool in all Spain; and the flock of Negretti is conſidered to be the fineſt, with reſpect to the ſtrength of the ſheep, and the weight of their fleece: on this account ten rams were ſelected from it for France which coſt from 60 to 80 rials each, ewes ſelling at from 50 to 60 rials.

While on their return, in the month of May, they are ſhorn, an operation of conſiderable magnitude in Spain, becauſe there it is performed in great buildings called *eſquileos*, contrived ſo as to receive whole flocks of forty, fifty and ſometimes ſixty thouſand ſheep. Harveſt time and vintage in corn and wine countries are not ſeaſons of greater feſtivity. The ſheep ſhearing is a time of rejoicing, both to the owner and workmen. The latter are divided into claſſes, each of which has its diſtinct employment. A hundred and twenty-five workmen are neceſſary to every thouſand ſheep. Each ſheep produces four ſorts of wool, more or leſs fine according to the part whence it is taken.

When the ſhearing is finiſhed, the wool is made up in bags and ſent to the ſea ports, where it is ſhipped without any other preparation; or to the waſhing or ſcouring places in different parts of Caſtile. There are ſeveral in the diſtrict of Segovia. I particularly examined one of the moſt conſiderable, that of Ortijoſa, three leagues from St. Ildefonſo. I was there convinced that this operation, imperfect as it appears at firſt ſight, becauſe foreign manufacturers repeat it before they make uſe of the wool, ſufficiently anſwers the intention, which is to preſerve the wool, ſo that the longeſt voyage ſhall not alter its quality. Through this ſingle ſcouring place there annually paſſes about 10,000 lb. of wool. The place is of great extent, and forms a kind of baſon, the inner ſides of which are gently ſloping meadows, which receive the rays of the ſun in every direction.

The wool is carried thither in the ſtate it was then taken from the ſheep *: each fleece is as it was firſt made up. In this form it is given to the *Apartadores*, who divide it

* Flandrin, who made a journey into Spain on purpoſe to ſtudy the nature and treatment of ſheep, differs in ſome meaſure from me in his account of the manner of waſhing and drying. I ſhall not diſpute the point with this valuable farmer, who, as well as myſelf, has had recourſe to the beſt authorities. If the ſeaſons and places be looked to, we may both be right.

into

into three heaps of different qualities. They are ſo much accuſtomed to this buſineſs, which requires a long apprenticeſhip, that they can tell, at firſt ſight, from what part of the animal each flock of wool has been taken. Theſe three ſorts thus ſeparated are extended upon wooden hurdles, where they are ſpread, beaten and cleanſed from the duſt and dirt adhering to them; they are afterwards taken to the waſhing place.

As ſoon as the water in the great copper is on the point of boiling, it is let out by two great ſpigots that open or ſhut certain pipes by which it is conveyed into three ſquare wells, lined with hewn ſtone, and about three or four feet deep. The hot water falls upon a bed of wool, which covers the bottom of the well. The wool thus diſpoſed is turned in every direction by three men. Each ſort of wool is waſhed ſeparately; and, according to its fineneſs, requires the water to be more or leſs heated.

After this operation, the wool is again ſpread upon hurdles, to drain off the water and filth, which has begun to diſſolve. The coarſe locks are alſo ſeparated from the reſt, and ſold for the benefit of the ſouls in purgatory; for, in Spain, religion is connected with every thing. The Spaniards ſanctify by this frequently whimſical aſſociation, their occupations, riches, and even their pleaſures.

The hurdles are afterwards placed between the wells, and a narrow aqueduct, through which runs a ſtream of cold water. A man placed at the entrance of the aqueduct receives the wool, and throws it in; while five men, who ſtand by the ſide below the firſt man, preſs and rub it with their feet as it paſſes, and forward it from one to the other. Still lower down are other workmen who ſtop it in its paſſage, and throw it on a ſtone ſlope, where it drains, while the water runs off into a gutter contrived below the ſlope. A net, placed at the extremity of the aqueduct, retains the locks which ſlip from them, and might be carried away by the rapidity of the current.

When the wool is well drained, it is ſpread upon the declivity of the meadows which we have before mentioned, and four fine ſunny days are ſcarcely ſufficient to dry it thoroughly. When it is quite dry it is put into bags to be carried away. Initial letters upon the bags indicate the ſort of wool contained in each; and, beſides theſe, there is a mark which diſtinguiſhes the flock by which it was furniſhed; in this condition it is exported, in this ſtate traverſes the country, ſo that on ſeeing thoſe bales paſs by, their quality and the place they came from are eaſily recognized.

Not far diſtant poſſibly is the time, when the roads of France will be covered, with this precious article, and their ports ſerve but as entrepôts for the ſurplus, not wanted for its own conſumption. Let not Spain behold with an eye of envy this poſſible ſucceſs. Let not her allies appear to her as dangerous rivals. Should they even eventually bear away from her children the excluſive poſſeſſion of this advantage, does ſhe not poſſeſs undividedly a ſufficiency of others? The field for human induſtry is ſo wide, ſo various its reſources, that all nations may cultivate it, without rivalry, or injury to each other. Oftentimes in order to prevent grand quarrels, as to avoid law ſuits between individuals, the whole that is wanting is reaſon, and a clear underſtanding of each other.

In the mean time I learn from very recent intelligence, that at the period of the concluſion of peace, there were in the ports of Spain 16,000 bales of wool, whoſe exportation had been ſuſpended by the war; and that ſince the peace was ſigned, our manufacturers of Sedan, of Louviers, of Elbœuf and even ſome houſes at Paris, and Orleans, have expedited orders for Spaniſh wool, but to much ſmaller amount than before the war. We ſhould be aſtoniſhed at our manufacturers having occaſion to order even theſe, after the rich prizes of this merchandize made by our cruizers; were it not known that they were carried for ſale to Amſterdam.

CHAP.

CHAP. IV.—*Reſidence of St. Ildefonſo.—Etiquette of the Court.—Titles.—Dignities.—Grandees.—Order of Knighthood.*

I SHALL now leave Segovia, its wool, and its environs, and conduct my reader to the caſtle of St. Ildefonſo, which is only two leagues from it. The high mountains which command it are ſeen at a great diſtance, and ſcarcely has the traveller quitted Segovia before he diſcovers the caſtle itſelf. Its environs by no means announce the reſidence of a great court. The country is barren, and a few wretched hamlets, at ſmall diſtances, are ſcattered about the moſt arid country that can be conceived; yet what better could be expected in this part of Old Caſtile, ſurrounded by barren mountains, and without roads, canals, or navigable rivers? What, however, has principally tended to the devaſtation of this diſtrict is the numerous herds of deer which live here in peace, and never have their repoſe diſturbed but by the King and his family, who paſs there about two months in the year. Scarcely had Charles IV. aſcended the throne before (in ſpite of his hereditary taſte for this amuſement) he began to make regulations for the gradual deſtruction of theſe animals, and haſtened the execution thereof by giving himſelf the example.

The country, however, becomes more beautiful as we approach St. Ildefonſo; a number of rivulets meander through the freſh verdure, and the deer wander in herds in the copſes, or bound upon the hills in a ſecurity which could not be expected in theſe timid animals; the tops of a few handſome houſes appear above the green oaks; and the group, formed by the caſtle and the adjoining edifices, crowned by mountains, ſome naked, others covered to their ſummits with trees and ſhrubs, preſent a very pleaſing proſpect. At length we arrive at the gate fronting the royal reſidence, which is ſeparated from it by a ſpacious court in form of a glacis.

The whole has an imperfect reſemblance to Verſailles. One at firſt imagines that Philip V., who built St. Ildefonſo, wiſhed to have about his perſon ſuch objects as might recall to his recollection the abode ſo dear to him in his early youth. He ſeems to have had the ſame intention in eſtabliſhing his military houſhold.

Of the old guards of the Kings of Spain there remains but one company of halbardiers, which may be compared to that of the hundred Swiſs. Philip V. eſtabliſhed three companies of body guards, each of two hundred men, modelled, with reſpect to form and cloathing, after thoſe of the French court. To theſe three bodies the King has joined a fourth, called the *American company*. Two regiments, which guard the exterior of the caſtle; that of the Spaniſh guards, and the regiment of Walloons, are alſo perfect copies of our regiments of French and Swiſs guards. A company is detached from each of them to do duty wherever the court reſides.

The command of each of theſe ſix military corps which form the interior and exterior guard of the Kings of Spain, is given to the moſt diſtinguiſhed perſons of the nation. The commander of the halbardiers is always a grandee of Spain. The captain of the Spaniſh company of body guards is one of the moſt illuſtrious families. A lieutenant-general has been placed at the head of the new American company. That of the Italian company is generally an Italian nobleman, and the captain of the Flemiſh corps is either a noble Fleming, or ſome ſtranger related by his family to Flanders. The The ſame rule is obſerved with reſpect to the Walloons. The captain of the Spaniſh

guards is always chosen from the most distinguished grandees of Spain. The Duke D'Ossuna holds that station at present *.

The proofs of the predilection which Philip V. had for the residence of St. Ildefonso have survived him. His remains are deposited in a chapel within the castle. I visited this mausoleum more than once, which has something awful in its simplicity.

The appearance of the tomb which contains an illustrious person, always excites serious reflection. What then must be the impression made by that of a prince, whose reign holds so distinguished a place in modern history, and forms the epocha of the last exploits of Louis XIV., and of his greatest disasters; of a prince for whose interests Europe was agitated by three wars within less than half a century, and to whom the conquest of the greatest monarchy in the world was not the accomitant of happiness; but proved in the gloomy melancholy which obscured the last years of his life, that the most brilliant successes of ambition are ever followed by satiety and uneasiness.

More pleasing are the thoughts one cherishes in the enchanting abode which Philip V. prepared for himself in the midst of sequestered woods, surrounded by steep mountains. There is nothing magnificent in the palace, particularly in its exterior. The front on the side of the garden is of the Corinthian order, and not destitute of majesty. Here are the King's apartments, which look upon a parterre surrounded with vases and marble statues, and a cascade which, for the richness of its decorations, the purity and clearness of its waters, may be compared with the finest of the kind. Philip V. was in this respect much better served by nature than his father. From the mountains which shade the palace descend several rivulets, which supply the numerous fountains, and diffuse life and verdure through these magnificent gardens. They are on the inside a league in circumference. The inequality of the ground affords every moment new points of view. The principal alleys answer to different summits of neighbouring mountains; and one in particular produces the most agreeable effect. It is terminated at one end by the grand front of the palace. From this point are seen at one view five fountains, ornamented with elegant groups, rising into an amphitheatre, above which appear the summits of lofty mountains. The most elevated of these groups is that of Andromeda fastened to a rock. When seen at a short distance it is somewhat defective, the rock appearing too diminutive by the side of the monster which threatens Andromeda and Perseus, by whom it is attacked; but the whole contributes to the beauty of the view. The most remarkable indisputably of the five groups is that of Neptune. Genius presided both at the composition and in the choice of its situation; the god of the ocean appears erect, surrounded by his marine court. His attitude, his threatening countenance, and the manner of holding his trident, announce that he has just imposed silence on the mutinous waves; and the calm which reigns in the bason, defended from every wind by the triple wall of verdure by which it is surrounded, seem to indicate that he has not issued his commands in vain. How oft have I seated myself, with Virgil in my hand, under shade of the verdant foliage, beside the silent water, reflecting on his famous *Quos Ego!*

There are other fountains worthy of the attention of the curious; such as that of Latona, where the limpid sheaves, perpendicularly, and in every direction, fall from the hoarse

* It is he who in 1799 passed several months at Paris with all his family, and who gave a specimen of the sumptuosity of the grandees of Spain of the first order, and at the same time of the simplicity of their ceremonies, their affability, and in short of every thing which tempers in them the splendour of a great fortune with a great name. The revenue of M. le Duc D'Ossuna is nearly 3,000,000 of franks.

throats

throats of the Lycian peaſants, half transformed into frogs, and ſpouting them forth in ſuch abundance, that the ſtatue of the goddeſs diſappears under the wide mantle of liquid cryſtal; that alſo of Diana in the bath, ſurrounded by her nymphs; in the twinkling of an eye all the chaſte court is hid beneath the waters; the ſpectator imagines he hears the whiſtling of aquatic birds, and the roaring of lions from the place whence this momentary deluge eſcapes by a hundred channels. The fountain of Fame is formed by a ſingle *jet-d'eau*, which riſes a hundred and thirty feet, exhibits to ſeveral leagues around the triumph of art over nature, and falls at length in a gentle ſhower upon the aſtoniſhed ſpectators.

There are ſome ſituations in the gardens of St. Ildefonſo, whence the eye may collectively diſtinguiſh the greater part of theſe fountains. The traveller who wiſhes to charm all his ſenſes at once, muſt take his ſtation on the high flat in front of the King's apartment. In the thick part of the foliage are contrived two large arbours, through the windows cut in which are ſeen twenty cryſtal columns riſing into the air to the height of the ſurrounding trees, mixing their reſplendent whiteneſs with the verdure of the foliage, uniting their confuſed noiſe to the ruſtling of the branches, and refreſhing and embalming the air. Aſcending towards the grand reſervoir of theſe abundant and limpid waters, after having traverſed a ſuperb parterre, and climbing for ſome time, you reach a long and even alley, which occupies all the upper part of the gardens. In the middle of this alley, turning towards the caſtle, a vaſt horizon appears as far as the eye can reach. The immenſe gardens, through which you have paſſed, become narrower to the eye; the alleys, fountains, and parterres all diſappear; you ſee but one road before you, which in the form of a veſſel, upon the prow of which you ſeem to ſtand, has its ſtern on the top of the palace. Afterward, on turning, you have a view of a little lake behind you, of which the irregular borders do not, like what we call our Engliſh gardens, merely mimic the captivating irregularities of nature. Nature herſelf has traced them. The alley from which you enjoy this proſpect is united at each end to the curve which ſurrounds the reſervoir. The waters, which ſtream in abundance from the ſides of the woody mountain in front, theſe waters, whoſe diſtant murmurs alone diſturb the quiet of the ſcene, meet in this reſervoir, and thence deſcend by a thouſand inviſible tubes to other reſervoirs, whence they are ſpouted in columns, ſheaves, or arcades upon the flowery ſoil which they refreſhen. The image of the tufted woods which ſurround it is reflected from the unmoved ſurface of the lake, as is alſo that of ſome ſimple and rural houſes under their ſhade, thrown, as by accident, into this delightful picture. The ſtreams which feed this principal reſervoir formerly loſt themſelves in the valleys, without affording either profit or pleaſure to any one. At the call of art they have become both agreeable and uſeful. After climbing the pyramidal mountain where their ſource is concealed, you reach the wall of the garden which was hid by the thickneſs of foliage. Nothing in fact ought here to ſtrike the mind with ideas of excluſive property. Streams, woods, the majeſtic ſolitude of mountains, theſe are bleſſings which man enjoys in common. The rivulets which eſcape from the grand reſervoir ſerve by little channels, ſome viſible, others running under ground, to water all the plants of the garden. In their courſe, in one place they moiſten haſtily the roots of the trees, in others they croſs an alley to nouriſh more ſlowly the plants of a parterre. From the baſon of Andromeda they run between two rows of trees in a hollow and ſombre channel, the too ſudden inclination of which is taken off by caſcades and windings. At length, after diſſecting the garden in every direction, after playing amongſt the gods and nymphs, and moiſtening the throats of the ſwans, tritons, and lions, they ſink under ground, and enter the boſom of the neighbouring meadows.

The taſk were endleſs to enumerate all the ſtatues, groups, and fountains which decorate the gardens of St. Ildefonſo. I ſhall be content with noticing that, a very few pieces excepted, all the ſculpture is the work of French artiſts of a ſecondary rank, ſuch as *Fermin Thierry*, whom Louis XIV. ſent to his grandſon, and their pupils, who are ſomewhat their inferiors; they have diſplayed more magnificence than taſte in the ſquare of the eight allies, *Plaça de las ocho calles*. Eight alleys anſwer, each at one extremity, to this centre; the other terminating in one of the fountains, diſperſed through the gardens. Plats of verdure fill up the intervals between the alleys, and each has an altar under a portico of white marble by the ſide of a baſon ſacred to ſome god or goddeſs. Theſe eight altars, placed at equal diſtances, are decorated with ſeveral *jets-d'eau*, particularly by two which riſe perpendicularly on each ſide of their divinities, and have a ridiculous reſemblance to the wax-lights of a chriſtian altar. This cold regularity diſpleaſed Philip V., who a little before his death, when viſiting the gardens, made ſome ſevere reproaches to the inventor upon the ſubject. Philip had not the pleaſure of completely enjoying what he had created; death ſurpriſed him in 1746, when the works he had begun were but half finiſhed.

This undertaking was the moſt expenſive one of his reign. The finances of Spain, ſo deranged under the princes of the Houſe of Auſtria, thanks to the wiſe calculations of Orry, to the ſubſidies of France, and ſtill more to the courageous efforts of the faithful Caſtilians, would have been ſufficient for three long and ruinous wars, and for all the operations of a monarchy which Philip V. had conquered and formed anew, as well as to have reſiſted the ſhocks of ambition and political intrigue; but they ſunk beneath the expenſive efforts of magnificence. Sovereigns of every ſtate, learn from this example, that your glory, your diſaſters even, are ſometimes leſs dear and burthenſome to your ſubjects than your pleaſures! Will it be credited (it has however been preciſely aſcertained) that Philip V. expended forty-five millions of piaſtres in the conſtruction of the caſtle and gardens of St. Ildefonſo; and that this is the exact amount of the ſum in which he was indebted at the time of his death.

This enormous expence will appear credible when it is known that the ſituation of the royal palace was at the beginning of this century the ſloping top of a pile of rocks; that it was neceſſary to dig and hew out the ſtones, and in ſeveral places to level the rock; to cut out of its ſides a paſſage for a hundred different canals; to carry vegetative earth to every place in which it was intended to ſubſtitute cultivation for ſterility; and to mine, in order to clear a paſſage to the roots of the numerous trees which are there planted. So many efforts were crowned with ſucceſs. In the orchards, kitchen gardens, and parterres there are but few flowers, eſpaliers, or plants which do not thrive; but the trees naturally of a lofty growth, and which conſequently muſt ſtrike their roots deep into the earth, already prove the inſufficiency of art when it attempts to ſtruggle againſt nature. Many of them languiſh with withered trunks, and with difficulty keep life in their almoſt naked branches. Every year it is neceſſary to call in the aid of gunpowder to make new beds for thoſe which are to ſupply their place; and none of them are covered with that tufted foliage which belongs only to thoſe that grow in a natural ſoil. In a word, there are in the groves of St. Ildefonſo marble ſtatues, baſons, caſcades, limpid waters, verdure and delightful proſpects, every thing but that which would be more charming than all the reſt, thick ſhades.

After the death of Philip V. the caſtle of St. Ildefonſo was entirely abandoned by the court of Spain. His ſecond wife, Iſabel Farneſe, was the only one who reſided there; and during the reign of Ferdinand VI., the ſon of Philip's firſt wife, led there a moſt retired and private life, without ever going out of the apartments of the caſtle, at leaſt without

without once exceeding the boundaries of the gardens. This ſingularity I have had atteſted by many who accompanied her in her retreat. She divided her time in the moſt ſtrange manner, ſitting up always the whole night long, dead as it were to the world, and to the light of day. She ſeemed occupied with nothing but her bodily and ghoſtly health, when her ſon Charles III., then King of Naples, coming to the throne in 1759, upon the death of Ferdinand VI., that ambition which did but ſlumber in her began to ſhew itſelf anew. She again appeared at court, and there exerciſed for the remainder of her life as much influence as in the reign of Philip V, the weakeſt of monarchs and of huſbands. Charles III. inherited the taſte of his father for St. Ildefonſo. Throughout his reign the court came hither annually during the heat of the dog days. It arrived towards the end of July, and returned at the beginning of October. The ſituation of St. Ildefonſo, upon the declivity of the mountains which ſeparate the two Caſtiles, and fronting a vaſt plain where there is no obſtacle to the paſſage of the north wind, renders this abode delightful in the ſummer months. The mornings and evenings of the hotteſt days are agreeably cool, and the tops of the mountains are covered with ſnow during a major part of the year. Yet as this palace is upwards of twenty leagues from Madrid, and half of the road which leads to it (that which begins at Guadarrama) croſſes the broad tops of mountains, frequently very ſteep, it is much more agreeable to the lovers of the chace and ſolitude than to others. The reigning queen, when princeſs of Aſturias, had an averſion for this place, which ſhe manifeſted upon all occaſions. Charles IV. coming to the throne in 1789, it was imagined St. Ildefonſo would be entirely abandoned. In effect, the firſt ſummers paſſed over without the court's viſiting it, the King being ſatisfied with ſhort excurſions to it. By degrees this repugnance diminiſhed. The happy temperature of St. Ildefonſo has enforced its rights, and the expeditions to this place take place at their uſual periods. On my firſt appearance, in September 1775, the court was here; and here it was that I ſaw it for the laſt time in the month of Auguſt 1792; events which rapidly ſucceeded each other after that period, preventing my attendance there up to the time of my departure, which was the ſignal for hoſtilities between the two powers. Never was this reſidence more brilliant than on the occaſion of the viſit of the two French princes, the Count d'Artois and the Duke de Bourbon, to Charles III. in 1782, on their way to be preſent at the ſiege of Gibraltar. Since the beginning of the reign of the Houſe of Bourbon in Spain, this was the firſt interview of this deſcription. The old monarch, who always had a great portion of natural affection, diſplayed upon the occaſion as much kindneſs as magnificence, ſhewing a ſolicitude and delicacy upon account of theſe two relations, which it was difficult to reconcile with his ſimple manners. The Comte d'Artois and all his ſuite had apartments in the palace. The whole houſe was at his ſervice. Eſpecial care was taken that his near attendants in their dreſs, their manners, and language, ſhould retrace as much as poſſible the image of his father's court. Thoſe attentions had no other limits than what were preſcribed by the propriety of not overwhelming him with ceremonies, and leaving him in perfect freedom. Charles III. lived a very regular life, all his hours were appropriated. Hunting, fiſhing, prayer, labour in the cabinet, every thing was continued as before. The Duke de Bourbon, who went by the name of Dammartin, was treated with leſs form, but not with leſs affection. Young and ſtrangers to the etiquette of the Spaniſh court, the two princes felt the want of a governor, and ſubmitted themſelves to the care of the Count of Montmorin, the French ambaſſador at that time. He was my patron. He periſhed by the hands of cannibals amid the ſtorms of the revolution. Party ſpirit aſcribed wrong conduct to him; for me, I know beſt his misfortunes, and far be from me the fear of acknowledging his kindneſs, and

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rendering him that tribute of juſtice and gratitude which I paid him in his proſperity. His adverſity but more enhances my obligations. I ſhall therefore obſerve, that during the ſix years of his embaſſy we proved in him what the Spaniards were diſpoſed to doubt, that Frenchmen may poſſeſs gravity without pedantry, wiſdom without ſternneſs, dignity without aſſumption, and prudence without timidity. I ſhould add, that, received by the King with all that reſpect he was entitled to, he acquired the confidence of the miniſtry, the friendſhip of the grandees, and the eſteem of the whole nation; and notwithſtanding the reſervedneſs of his manners, I know none who poſſeſſed his intimacy but what were highly prepoſſeſſed in his favour. There is no court in Europe where the perſons of ambaſſadors are more generally known. During the reign of Charles III. they were even ſubject to an aſſiduous attendance which was fatiguing, particularly the family ambaſſadors. They almoſt all accompanied the court to St. Ildefonſo, the Eſcurial, and Aranjuez, and regularly attended the table of the King and his family. They had daily a private audience of His Majeſty, both before and after dinner, and the reſt of the foreign miniſters as well as them were admitted for a ſhort time into the cabinet. They now make their appearance at court no more than twice in a week. Charles IV., ſtill more ſimple in manners than his father, has done away with ſuperfluous ceremony, although in his private life he maintains the ſame uniformity and regularity. He is as partial to ſhooting as Charles III.; but his partiality has been rendered of much leſs injury to the neighbourhood of his reſidences. He has a taſte for the fine arts, and agriculture, as we ſhall notice on ſpeaking of Aranjuez, for athletic exerciſes, to which his ſtrength and robuſt conſtitution are peculiarly adapted, and for muſic, which he as well as the Queen, enjoys in very circumſcribed parties, every evening after returning from ſhooting, and being cloſeted with one of his miniſters; for nothing is ſo rare, even at the court of the reigning family, as public rejoicings and noiſy pleaſure.

This court, ſo much retired, ſo regular in its deportment, is very far from being deficient either in etiquette or magnificence. Charles III., a widower from 1761, always dined in public by himſelf, ſurrounded by his officers. The reigning monarch dines with the Queen. Each has behind their chair the grand maſter of the houſhold, the chief almoner, the captain of the guards on duty, and an exempt of the guards. They are waited upon by two gentlemen of the preſence, who are grandees of Spain, one of whom ſerves the diſhes, and the other hands the wine, kneeling on one knee. The ſame ceremony is uſed by the ladies of the palace to the Queen, and to the infants and infantas by titled perſons in their ſervice. The philoſopher may ſmile at this vilifying homage, but it does not belong excluſively to Spain. It is well known the ſame forms are made uſe of towards the ſovereigns of London and Vienna, and to their families, where the power of the monarch in many reſpects is limited. This homage, however, is more particularly diſplayed on gala-days. Theſe are of two kinds, the greater and leſſer galas. In the time of Charles III. there were ten of the firſt deſcription every year, to celebrate the birth-days of the King, the Prince and Princeſs of Aſturias, and of the King and Queen of Naples, the one as ſon, the other as daughter-in-law of the King. There are now only ſix; four for the King and Queen, and two for the Prince of Aſturias; the other leſſer or *demi-galas*, are in honour of the other princes and princeſſes of the royal family, and at preſent are twenty-two in number. Theſe require but little more attention to dreſs than ordinary; but at the grand galas, the greateſt pomp is diſplayed by all except the hero of the day, in which, however, taſte does not always preſide. Every perſon in the ſervice of the court, from the grand maſter to thoſe who hold the moſt inconſiderable employments, have a uniform ſuitable to their places, and which they wear on theſe occaſions, on which account theſe

are called *galas con uniforme*. In the morning of theſe great days, all thoſe who have any connexion with the court, whether by their military ſervice, their titles, or civil functions, the eccleſiaſtics, and always ſome monks, paſs before the King and the royal family, bending one knee and kiſſing the Monarch's hand. This is a ſpecies of loyalty and homage, and renewing of the oath of fidelity, which, beſides upon gala days, is alſo paid to the monarch on returning thanks for any favour, or on taking leave to execute his orders any where apart from his reſidence.

Republicans,* ſhould they not even be philoſophers, may be allowed to ſmile with pity at theſe grave minutiæ. They yet are deſerving of detail, as they furniſh additional means for acquiring a knowledge of the human heart, its pride, and its weakneſs. This abaſement, which, without being noble, may be looked upon as vilifying, has, however, nothing more revolting in it than the ceremonial at which our ancient knights did not diſdain to kneel, upon receiving the collar; or, than the inveſtiture which, in our days, is accompanied by the ſame act of ſubmiſſion. But what is truly ſingular, to ſay no more of it, women of the greateſt diſtinction not only kiſs the hand of the Monarch, but that of all his children, whatever may be their age or ſex, and the moſt charming ducheſs proſtrates herſelf before the youngeſt infant even when at the breaſt, and preſſes, with her lips, the little hand which mechanically receives or refuſes the premature homage. Thus is the fair-ſex deſtined to meet every where with inſult; denied in France the privilege of citizenſhip, it has no ſhare in the honours of freedom. In Spain, it is admitted to the honours appertaining to ſlavery. I ſhall, however, obſerve in behalf of Spaniſh etiquette, that it favours the delicacy of the fair ſex. Men kiſs hands in public, but the ladies only in the inner apartments. None but the ladies who have employment in the palace, kiſs the hands of all the royal family. The others, who are received at court, pay this homage to no one but the Queen and the Princeſs of Aſturias. This claſs is compoſed of all the female grandees of Spain, and ladies of title; which denomination muſt not be underſtood in the ſenſe affixed to it in France. It here becomes neceſſary to treat of the dignities and titles of the court of Spain *.

Princes of the blood, as we called them, have not hitherto been diſtinguiſhed as ſuch at this court. Next to the Infants and Infantas of Spain, and the ſons, grandſons, and nephews of the Sovereign, immediately come the grandees; and the Dukes of Medina Celi, the immediate and legitimate deſcendants of the Infants of La Cerda, and conſequently of royal origin, are only grandees of Spain. Theſe are divided into three claſſes, differing from each other by ſuch trifling diſtinctions as are ſcarely worth notice. All the grandees of Spain, of whatever claſs they may be, are covered in preſence of the King, and have the title of Excellence; when they paſs the guard-room, a perſon in waiting ſtamps on the ground, in order to give notice to the centinel to port arms; in theſe are comprehended all their prerogatives. Beyond this, they have no honorary diſtinction pertaining to their title. They do not form a body, as formerly the dukes and peers of France. It ſeems as though the Kings of Spain, unable to deprive this order of its hereditary dignity, were deſirous, in revenge, of keeping them in entire dependance,

* Certain rigid republicans have looked upon, at leaſt as ſuperfluous, the preceding and following details. I readily grant their philoſophy the right of a ſmile of contempt, but it is not for them alone I write; to ſome of my readers they may be intereſting: ſhort would be the works that ſhould contain thoſe things only with which every body would be pleaſed; the moſt famous books cannot boaſt ſo much. Of what value to merchants are the philoſophical declamations of *Raynal*, which, however, in great meaſure, made his fortune? Of what value to ſprigs of faſhion the calculations with which his work is replete? In the immortal works of Monteſquieu, deep thinkers look upon his epigrammatic ſallies as ſuperfluous; whereas the ladies and their beaux would willingly diſpenſe with his learned diſſertation on the eſtabliſhment of the Franks in Gaul.

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and subject to their caprice for any additional lustre. There is no place which is exclusively attached to their rank, if we except that of grand master, that of grand equerry, and that of *fumiller de corps*, which has some relation with the place of grand chamberlain, and the commission of captain of halberdiers; and these places, as well as all the others, are conferred solely at the King's pleasure; but there are several others which infallibly lead to the rank of grandee.

The band of gentlemen of the chamber on duty is for the most part composed of grandees; but there are also some persons of quality, who, without the former rank, obtain this dignity. It is true, none of the latter are employed immediately about the person of the Sovereign, or the heir to the crown, and the Queen and the Princess of Asturias are served by none but grandees.

The Queen has other females of a less illustrious rank for her internal service: these are ladies of distinguished families, which, under the name of Carmeristos, act nearly in the character of chamber-maids.

As to the grandees of either sex attached to the King's person, they are taken indistinctly from either of the three classes; there are some whose extraction is from the most ancient and illustrious families, and who belong to the two latter orders, but who do not esteem themselves inferior upon that account. Philip V., who conferred many titles of grandee, created not one of either of the second or third class. He contended for a long time for the crown, as well against internal as external enemies; and, when he came into possession, he looked upon the favours he had to distribute as actual rewards for very signal services, either of a political or military nature; and, doubtless, thought he ought to proportion his gratitude to the importance of the services rendered; or, possibly, the haughtiness which he brought with him from Versailles to Madrid, made him fancy, that those who had had the honour of being serviceable to him, had a right to step at once into the most illustrious rank. Whatever were his motives, Ferdinand VI. imitated his example; but Charles III. has revived a distinction almost imaginary, which was falling into oblivion; and, in the last promotions, created several grandees of the second class.

They do not all enjoy the privilege of being covered in the royal presence, except when they are received for the first time, and when they accompany His Majesty at any ceremony. This honour does not, however, belong to them exclusively; they enjoy it in common with the nuncio, the family, ambassadors, and some generals of orders, who have the title of Excellence as well, and as long as their dignity continues are by these two circumstances assimilated to the real grandees. Thus, there is not one single invention of human vanity which cowled humility disdains to sanctify by its adoption.

There are some titles of grandee that become extinct at the death of the possessor, and some obtain that honour for themselves and their descendants only. These bear the title of Excellence, but are not covered in presence of the King. A more marked distinction in the different classes of grandee, and which is not founded upon law, but more imperious custom, is that which the grandees of ancient families establish between themselves and those of more modern or less illustrious extraction. The first speak to each other in the singular number on all occasions, and whatever may be the difference in their ages, or the places they hold. I have more than once heard such young grandees, who scarcely had the rank of colonel, speak in this apparently familiar manner to the minister of war, who, at the time, happened to be a grandee of Spain. Had he been of less illustrious extraction, they would have given him respectfully the title of "your *Excellency*." They *thou and thee'd* him, because by birth he was on a level with themselves. And an additional proof of that trivial axiom, *extremes meet*. A strong aversion

to every ſort of diſtinction, and a deſire of equalizing every thing, cauſed the French to adopt the ſame habit during the Revolution. In Spain, among the chief grandees, it has become the moſt ſubtile diſtinction that pride can ſuggeſt. They have placed it in the ſummit of the pyramid of nobility. But theſe great privileged perſons are not prodigal of this honourable familiarity. In converſation, in epiſtolary correſpondence with the great, whom they do not deem their equals, they ceremoniouſly give and receive the title of *excellency*. New grandees of Spain ſolicit, as a favour, the honour of being *thou and thee'd*, and ſhould they at laſt obtain it, conſider it as a triumph; the new grandees ſolicit the honour of ſpeaking to each other in the ſingular number, as they would do the favour of the ſovereign.

In the courſe of my firſt reſidence in Spain, I ſaw a ſtriking example of this. The old Duke of Loſada, who was then *ſumiller de corps*, and who, perhaps, was the only real friend of which Charles III. could boaſt, had accompanied him in his youth, when he left Madrid to take poſſeſſion of the dutchy of Parma, and afterwards of the kingdom of Naples. His extraction was from the inferior nobility. In time, he was loaded with dignities, and made a grandee. Coming back again to Madrid with the ſame prince, on his acceſſion to the throne of Spain, it was with great difficulty, notwithſtanding the favour he enjoyed, that he, at length, attained the diſtinction of being ſpoke to in the ſingular number by the individuals of the ancient race. The King himſelf, in order to procure his initiation to this privilege, interpoſing in his behalf, not by uſing his authority, for that would have been ineffectual, but by entreaty and ſolicitation. On other occaſions, this familiarity is ſometimes ſpontaneouſly granted by the moſt diſtinguiſhed grandees to branches of ſome illuſtrious houſes, who have not yet obtained the title, and who, thinking they have well-founded pretenſions to ſuch an honour, are diſtinguiſhed by the name of *caſas aggraviadas,—injured families*. On the other hand, the ſovereign and his family treat all their ſubjects, who are about their perſons, or approach them, with familiarity; this is at once a teſtimony of benevolence and ſuperiority. All diſtinction is loſt before them; and all Spaniards of whatſoever claſs, ſtation, age, or ſex, whether grandees, magiſtrates, prelates, or married women, young or old, are indiſcriminately addreſſed in the ſingular number; and would anticipate diſgrace if, in addreſſing them, the royal family ſhould decorate them with thoſe honorary titles, of which otherwiſe they are ſo jealous.

The title of grandee, when hereditary, is ſo in both males and females, unleſs the patent formally expreſſes the contrary. There are many houſes in Spain that, by marriages with heireſſes to this title, have ten or twelve *hats*; which is the vulgar term to denote the dignity of grandee of Spain. But the head of theſe houſes has not the power of diſtributing the hats among his children. The right of primogeniture is eſtabliſhed. There are but few families, in which the ſecond ſon has a title and a grandeeſhip in his own right. All the eldeſt ſons of grandees receive by anticipation, the title of excellence, but not their brothers; they ſimply bear the name of their family, preceded by that they received in baptiſm, much in the ſame manner as in England, where the brother of Lord Chatham is called William Pitt; the brother of Lord Holland, Charles Fox.

This diſtinction muſt not be loſt ſight of by a ſtranger, who does not wiſh to be deceived by the vain words count and marquis. There are many grandees of Spain who have no other title. There is no mark of extraordinary diſtinction in that of duke. It is given according to the pleaſure of the ſovereign, when he confers the title of grandee, even to the ſecond claſs, of which there are recent examples; the patent alone is a little more expenſive.

The title of Prince belonged hitherto exclusively to the heir of the monarchy. All those who were decorated therewith at the court of Spain were foreigners. The Duke de la Alcudia, who, on account of the signature of the treaty of peace between France and Spain, was called El Principe de la Paz, is the first instance of a King of Spain granting that title. Is it the importance of the service rendered to his country upon this occasion, which earned him this exception? or, is favour, when at its height, always secure of it in spite of laws and custom?

Formerly there was a sort of hierarchy in the order of titled nobility. The *Barons* (which are not to be confounded with the ancient Varrones,) which were met with, and are still found in Arragon, were of the lowest class; to these succeeded *Viscounts*; then *Counts* and last and chief were *Marquises*. Formerly it was requisite to be a *Viscount* before a person could become a *Marquis*, according to the *order of the titles of Castile*. But all these distinctions have now been done away with; and simple plebeians in this century, without any intermediary step, have been raised to the rank of Count and Marquis. But much is wanting of all those being grandees of Spain who are invested with these dignities. Most of them are no more than what are called *titulos*, or *titles* of Castile. These titles prove not an illustrious race, but the favour of the sovereign, commonly the reward of some important service. The King generally grants to him whom he thus honours, the liberty either of applying his title to one of his estates, or to his family name; sometimes even he adds a denomination which denotes the service he wishes to recompense. Thus, under Philip V. Admiral Navarro, who commanded the Spanish squadron at the battle of Toulon, received, gratuitously enough, the title of *Marquis de la Vittoria*; he, who in 1759, escorted Charles III. from Naples to Barcelona, that of *Marquis del Real Transporte*; and more recently, during the last reign, the minister of the Indies took that of *Marquis de la Sonora*, from the name of a colony in the neighbourhood of the Vermillion Sea, which his zeal and talents had acquired to his country by peopling and improving it, and by freeing the whole settlement from the incursions of the savages; and thus a magistrate named *Carasco* received the title of *Marquis de la Corona*, as a recompence for services rendered the crown in reclaiming certain property in land, of which it had been unjustly dispossessed; thus some grandees of Spain add to their titles such names as call to mind any glorious or important transaction in which they have figured. The Duke de Crillon, following this method, after taking the fortress of Mahon, preserved the remembrance of it by adding that name to his own: and the Prince of the Peace owes, as we have before mentioned, this title to the most important, and possibly the most fortunate circumstance of his administration. These titles have somewhat of grandeur, somewhat Roman in their object; and, and if they depend in measure upon the caprice of fortune, they are much less dependant on favour than the rest.

The titles of Castile give to those who bear them, and to their wives, the qualification of Lordship, *Vuestra Senoria*, by contraction spoken Ussia. The refusal of this in matters of ceremony carries with it a mortification; but the greater part are too reasonable to require, or even suffer it from their equals, in the ordinary intercourse of society; though their inferiors bestow this honour upon them very lavishly. There are every where flatterers, as well as persons who love to be flattered. But those who are more particularly exact in rendering them their due in this respect, are such as have a right to the title of *excellency* in return, and delight in the gratifying distinction.

There is a title between this and lordship; that of *Ussia Illustrissima* (most illustrious lordship,) which is given to archbishops, bishops, the principal members of the council of the Indies, (called *Camaristas*,) and to the president of the two supreme tribunals, called the *Chanceries*.

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The dignity of grandee, as well as the titles of marquis and count of Caſtile are not only unaccompanied with any pecuniary advantage, but are not even beſtowed gratis. Thoſe who obtain them, unleſs formally diſpenſed from it, pay a duty which has been received ever ſince the reign of Charles V., known by the appellation of *Demi-Annates.*

The grandees pay about twenty-five thouſand livres (1,040l.) This duty is paid as often as the title deſceuds, and is more or leſs, according to the greater or leſs diſtance between him who inherits it, and the perſon from whom it is derived. Beſides the duty on taking up the title, the grandees annually pay another under the name of *lanzas.* This is the remains and faint image of the military ſervice, which the great vaſſals of the crown formerly performed, by furniſhing a certain number of ſpears. Foreigners, who are grandees of Spain, are exempt.

According to an arrangement mutually agreed to between the courts of Madrid and Verſailles, ſince the ſame family has been in poſſeſſion of the two thrones, the grandees of Spain ranked with the dukes and peers of France. This acknowledgment of equality was not obtained without much oppoſition on the part of the former. When the queſtion was agitated at the beginning of the reign of Philip V., the duke of Arcos, in the name of the grandees, remonſtrated againſt it to that monarch in the ſtrongeſt terms. He aſſerted, that the grandees could not but be greatly ſurpriſed and offended at finding themſelves conſidered as on a level with the peers of France. At their own court, ſaid the duke, the grandees ſee no one between them and the throne, but the ſons of their ſovereign, whilſt the peers of France muſt give place, firſt to the princes of the blood, next to the legitimated princes, and laſtly even to foreign ones, not only to thoſe of Italy and Germany, but alſo to thoſe who, although deſcended from royal families, hold places in the ſervice of the King of France, ſuch as the Dukes of Loraine, de Bouillon, and others.

On the oppoſite ſide, the grandees in Spain conſtituted the firſt order of ſubjects immediately after the royal family. He gave inſtances of kings of Spain, and even of emperors, who had treated them as equals with the princes of Italy and Germany, and proved that the grandees had always enjoyed the ſame honours as the princes deſcended from ſovereigns, when they were not royal; that, when the courts of France and Spain had named repreſentatives, thoſe of France were princes of the blood, and thoſe of Spain grandees; without the leaſt difference being made in the reſpect and honours paid to each. From all theſe proofs the duke concluded, that the dignity of grandee of Spain correſponded with that of the princes of the blood in France, and not with that of the peers.

Theſe arguments were but ill received by Philip, who had contracted at the court of his grandfather a taſte for deſpotiſm. The anſwer he returned to the duke was, that he would do well to go and ſignalize his zeal with the army in Flanders. This order was obeyed, and the duke, on his return through Paris, was the firſt who deſiſted from the pretenſions of which he had been the advocate. He made the firſt viſit to the princes of the blood, gave them the title of *Highneſs*, without receiving the ſame, and addreſſed the dukes and peers by the title of *Excellence*, without requiring more in return; thus the cauſe of the grandees was loſt for ever.

Their number rapidly increaſed; their dignity was granted to ſeveral foreign noblemen; and, as all things are diminiſhed in value by being multiplied, the grandees have become accuſtomed, by degrees, to ſee themſelves conſidered as on a level with the dukes and peers of France. We are not to ſuppoſe, however, that the grandees of Spain, who derive their dignity from the reign of Charles V., do not think themſelves ſuperior to others, as in Germany the princes of ancient families eſteem themſelves more

noble than thoſe who were created by Ferdinand II. and his ſucceſſors; but this difference, ſo flattering to vanity in ſecret, vaniſhes from before the eyes of the nation, and eſpecially from thoſe of the ſovereign.

Theſe grandees, poſſeſſed of high notions of their own dignity, in other reſpects are extremely affable and obliging. They are void of that repulſive pride attributed to them in Europe. Many of them ſubſtitute a gentleneſs of manners and goodneſs of heart, inſtead of that haughty and forbidding dignity, common to the noblemen of other countries. Not but that they poſſeſs, if not a motive, at leaſt an excuſe for airs of pride, in high employments, illuſtrious birth, and immenſe fortunes. Indeed with reſpect to the latter, they are ſuperior to thoſe of the moſt opulent at the court of France, even before the Revolution.

Except thoſe of the princes of the blood, there were no fortunes at Verſailles to be compared to thoſe of the Duke of Medina Celi, the Duke of Alba, the Duke D'Oſſuna, the Count Altamira, or the Duke of Infantado. But their appearance ſeldom correſponds with their fortune. They do not ruin themſelves as in France, in country boxes, entertainments and Engliſh gardens, and as to the luxury of ſplendid furnitures, it is unknown: their pomp is more obſcure, but perhaps not leſs expenſive. Numerous ſets of mules, rich liveries which are diſplayed but three or four times a year, and a multitude of ſervants, are their principal articles of expence. The management of their eſtates is alſo very coſtly to them. They have ſtewards, treaſurers, and various officers, like petty ſovereigns. They keep in their pay, not only the ſervants grown old in their ſervice, but thoſe even of their fathers, and the families whence they inherit, and even provide for the ſubſiſtence of their relations. The Duke of Arcos, who died in 1780, maintained thus three thouſand perſons. This magnificence which diſguiſes itſelf under the veil of charity, appears to have more than one inconvenience; it encourages idleneſs and cauſes waſte and extravagance, which, while dependants are thus multiplied, muſt eſcape the moſt careful vigilance. Notwithſtanding all this, there are fewer great families ruined in Spain than in moſt other countries. The ſimplicity of their manners, their little taſte for habitual oſtentation, and the ſcarcity of ſumptuous entertainments, are great ſafeguards of their fortunes. But when deſirous of imitating the example of thoſe of other courts, their ſplendour is equal to that of the moſt brilliant. This may be judged of by the appearance ſome have made in foreign countries when the dignity of their nation required a diſplay of magnificence.

They have hitherto indeed but little trod the paths of ambition. At the beginning of the preſent century, when divided between the two princes who aſpired to the throne, their paſſions being rouſed, they made efforts and diſplayed talents, which were not always employed in that courſe which ſucceſs determined to be the beſt, but which proved that the latter reigns of the princes of the houſe of Auſtria had not benumbed their faculties. A kind of ſupineneſs, which has continued half a century, has ſucceeded to this fermentation; but in the reign of Charles III. they ſhook it off, and proved that the moſt diſtinguiſhed ſubjects in a nation are not always the moſt uſeleſs. They embraced with eagerneſs the profeſſion of arms, which in fact offered but few temptations, and which in Spain is more full of conſtraint for courtiers than it was in France.

At this moment, among eighty lieutenants general which there are, are twenty grandees; and General Count de la Union, who after ſeveral defeats periſhed glorioufly on the field of battle, fighting againſt us, was one of their order. In the political department they had in the time of Charles III., more than one diſtinguiſhed ſtateſman to boaſt of, a Count D'Aranda, yet regretted; Count Fernan Nunez, whom death raviſhed at the inſtant he was about to retain among us; a Duke de Villahermoſa, &c. &c.

Some years paſt the Duke D'Oſſuna was nominated ambaſſador to the court of Vienna, and the Duke del Pargue to Peterſburg, but did not proceed to their diſtinations: at preſent no more than theſe grandees are employed beyond the frontiers; the Count de Campo Alanzo, as ambaſſador at Liſbon; the Prince of Caſtel Franco at Vienna, and the Duke de Trias at London; the firſt of theſe however, has been elevated to the grandeeſhip but lately, and the ſecond is a Neapolitan nobleman *.

None are however occupied with any diplomatic miſſion at this inſtant, a circumſtance which has not happened before ſince the beginning of the laſt century, as up to the period of the Revolution Spain was conſtantly repreſented at Verſailles by a grandee.

It appears for a long time back to have been the ſecret practice of this court never to grant ſituations to her grandees which might put any great power in their hands, and from this practice ſhe has ſwerved only upon very particular occaſions. For example it has ſcarcely ever happened that one of thoſe American vice-royalties which for pomp, homage, and authority, are on a par with real ſovereignties for the time, and equal by the means whether legal or illegal, of acquiring wealth to the moſt lucrative offices of the revenue; it has, I ſay, ſcarcely ever happened that an appointment of this importance has ever been confided to a grandee; either on account of the jealouſy of the monarch who may dread ſo great an accumulation of title in one perſon, or becauſe he would ſee with regret the abſence of any, whoſe preſence added brilliancy to the ſplendour of his throne.

The body of the grandees furniſhes at preſent but few members to the church, the dignities of which are not, as in many other catholic kingdoms of Europe, engroſſed by a few individuals of the principal nobility. The only dignity with which any of them is at preſent inveſted, is that of patriarch of the Indies, who at the court of Spain performs the functions of grand almoner †. He who holds this place is conſtantly in waiting near the perſon of the ſovereign. No other grandees, except thoſe in actual ſervice, are near the monarch; the remainder have their fixed reſidence at Madrid, whence they are abſent but for a ſhort time to *pay their court*. A few reſide in the capitals of the provinces; but I know none who habitually reſide on their eſtates.

The dignity of grandee is not diſtinguiſhed by any exterior inſignia. Thoſe of its order who are gentlemen of the chamber wear a golden key the ſame as the reſt. There are ſix orders of knighthood in Spain, beſides the order of Malta; but not one to which the grandees have an excluſive right. The moſt diſtinguiſhed is the order of the golden fleece, founded by Philip the Good, duke of Burgundy, and which the court of Vienna continues to confer in concurrence with that of Madrid, although the former had renounced this prerogative, by the treaty which terminated the great quarrel between Philip V. and the archduke. The number of knights of the golden fleece is very limited in Spain. In no other order of Europe has the pride of nobility been more ſcrupulous; it is only lately that this decoration has been granted to ſome miniſters of ſtate who were not of an illuſtrious family.

There are alſo four other military orders, founded at the time of the cruſades; and ſince the time of Ferdinand the Catholic, the king has been grand maſter of them all. They are thoſe of *Santiago*, *Calatrava*, *Monteza*, and *Alcantara*. The three firſt are diſtinguiſhed by a red ribbon, and the laſt by a green one. Theſe four orders have

* Up to the period of the Revolution, the embaſſy to France was always filled by a grandee who was generally admitted into the order of the Holy Ghoſt.

† The patriarchate of the Indies and grand almonerſhip of the court has been veſted for ſome years in Cardinal Sentmanat, a deſcendant of that Marquis de Caſtel dos Rios ambaſſador at the court of Louis XIV., at the time of the arrival of the will of Charles II., the firſt grandee created by Philip V.

commanderies,

commanderies, which are conferred by the king. Sant Iago has eighty-ſeven, the richeſt of which is reckoned to be worth 200,000 rials a year; Calatrava fifty five, one of which is valued at 358,000 rials annually. Montoza has but thirteen and Alcantara thirty-ſeven, the commanderies of the two latter orders are the leaſt conſiderable of the whole. They were for a long time given to every claſs of perſons, provided they could bring the requiſite proofs. Charles III. recalled them to the ſpirit of their firſt inſtitution, and reſtricted the grant of them to military men. Upon this an honourable diſtinction for the reſt of the ſubjects was wanting. This he ſupplied in 1771 by creating a fifth order, which bears his name, and is dedicated to the *conception of the virgin.* It is compoſed of two claſſes: that of the great croſſes and ſimple knights. The great croſſes wear the great ribband of the order, ſky-blue, edged with white. On days of ceremony they are clothed in a long mantle of theſe two colours, and wear a collar upon which are alternatively diſplayed the arms of Caſtile and the king's cypher.

The number of the great croſſes ſhould be limited to ſixty, according to the ſtatutes of the order; it conſiſts at preſent of eighty-three including the princes of the royal family and ſome foreigners. When the order was firſt eſtabliſhed the members were choſen from among the grandees, except two of the great officers, of the order. A ſhort time afterwards the king made an exception to this rule, in favour of his marine miniſter, the marquis of Caſtejon. This exception was afterwards extended: though the order is ſtill confined to the moſt eminent perſonages of the kingdom, ſuch as the miniſters and ſome general officers, diſtinguiſhed either by their zeal or ſervices.

The ſimple knights were two hundred in number, each enjoying a penſion of four thouſand rials (about forty pounds). A few years ſince the king beſtowed this leſſer order upon ſome perſons in France, not included in the two hundred. On their account they departed from the ſtatute which rendered this order incompatible with all others, by permitting it to be aſſociated with the croſs of St. Louis.

In addition to the orders for men, the queen in 1792 inſtituted one which bears her name *Maria Luiſa* in favour of the fair ſex; it conſiſts of ſixty ladies, principally grandees. In the ſelection of its firſt members favour alone appears to have predominated.

Proofs of nobility are neceſſary to qualify for the ſmall order of Charles III, as well as the four military ones; but from the facility with which it is obtained one is led to doubt this; although no great efforts of intrigue are requiſite to elude this law; as nobility in moſt of the provinces of Spain, is not difficult to eſtabliſh. And it is ſufficient that he who aſpires to this diſtinction prove himſelf, and his anceſtors, to have lived nobly, without having exerciſed any of the ſmall number of profeſſions, which law and prejudice declare to be vile; he is then reputed a gentleman by deſcent; *hidalgo*; for in Spain nobility by creation is unknown. Some humouriſts have obſerved, that there are whole provinces of which all the inhabitants are gentlemen: nor is this any great exaggeration. Philip V. ennobled all the Biſcayans. All the Aſturians are believed to be deſcended from the ancient Goths, who took refuge in the mountains of Aſturia, and were never ſubjected by the Moors, and are reputed noble on account of this honourable origin. But there cannot be a more glaring abſurdity than to imagine that two or three hundred thouſand men who ſettled ſome centuries ago in a ſmall province, are all noble in the ſtrict meaning of the word. If all men were of the ſame height, the words giant and dwarf would be obliterated from the dictionary. Nobility neceſſarily ſuppoſes a more numerous claſs, who are leſs noble, not it is true of that deſcription, condemned in ſome places by abſurd laws to a ſpecies of abaſement, but obſcure inhabitants inferior to a ſmall number in credit and conſideration. Thus, in fact, there are

in Biſcay and Aſturia, as in other parts of Europe, diſtinguiſhed families, in the opinion of the public, who have made a great figure in the diſtrict in which they reſide, either by their opulence, or the places they have held; and whatever may be the pretenſions of obſcure neighbouring families, the former affect a pre-eminence, which theſe acknowledge by their homage: this, however, prevents not the latter from cheriſhing ideas of grandeur, which preſerve in their mind a noble pride undoubtedly preferable to the chimerical nobility of blood: ſo that if by ſome fortunate circumſtance they obtain ſome employment leſs obſcure than their birth, they conſider that they have only regained their proper ſtation, and are leſs inſolent and vain than moſt upſtarts in other countries.

I have more than once remarked this diſtinguiſhing characteriſtic, even in the loweſt ranks of the Aſturians and the Biſcayans. They have, in their appearance, ſomething more haughty, and are much leſs humble in their ſubmiſſion. They are not awed either by titles or riches. A man in place is in their eyes a fortunate man, who obtains a prize in the royal lottery, in which they all have a ticket, and may win in their turn; and this prejudice, ridiculous as it may ſeem, keeps them on their guard againſt meanneſs, and even againſt degrading crimes. This reflection is more or leſs applicable to all the other provinces of Spain, where *hidalgos* are more numerous, and where the members of the third claſs (*pecturos*) are diſtinguiſhed from them by no humiliating ſubjection; ſo that nobility here excites leſs envy, and a deſire of throwing off its yoke would leſs eaſily than in other places act as an incentive to general inſurrection.

Notwithſtanding thoſe imperceptible gradations, which in Spain ſeparate nobility from the inferior ranks, the proofs required in certain caſes are cloſely examined; but there, as well as in other countries, money and intereſt procure genealogiſts who are not over ſcrupulous. A reflection, applicable to every nation, may be made with reſpect to the nobility of Spain, which is, that the leſs a monarch is limited, the more arbitrary are theſe diſtinctions, and the more irregular the gradations. Deſpots, even thoſe the leaſt tyrannical, prefer or neglect their ſubjects according to their caprices. Unlimited monarchs exerciſe this kind of influence in a greater or leſs degree; and there are few ſtates in which the ſovereign authority is leſs circumſcribed than in Spain.

Under the ancient form of government it was more confined; but it has changed by degrees, and without exciting commotion. The intermediate ranks ſcarcely exiſt in name. The ſupreme councils, particularly that of Caſtile, which is the chief, have frequently tendered remonſtrances, where they have apprehended that the meaſures of the crown would be diſaſtrous, or have deemed them in oppoſition to the laws; but all the members of the councils are nominated by the king, and may be diſplaced at pleaſure. It is from him alone that they look for advancement in the civil career; and as the inſcription of the royal orders, which relate to their different departments, is made in their different regiſters without any legal power of avoiding it on their part, being in fact a mere matter of form; it does not appear that they poſſeſs even that power which was veſted in the ancient parliaments of France, of tacitly reſiſting the will of the ſovereign.

CHAP. V.—*Remains of the Cortès.—Council of State.—Strictures on Mr. d' Aranda, Mr. Florida Blanca, and the preſent Miniſters.—Offices.*

THE Cortes was the only dam which could arreſt the progreſs of deſpotiſm. The hiſtory of Spain ſufficiently proves how great an influence this ſpecies of ſtates general had in the moſt important affairs of government; but for a long time paſt, they have not

not been aſſembled, except for the ſake of form; and the ſovereigns, without violence, without formally rejecting their intervention, have found means to elude their authority. They render them however an homage in mockery, when they promulgate ordinances from the throne under the name of pragmatic, the preambles of which ſtate *that they claim the ſame reſpect as if they had been publiſhed in the aſſembly of the Cortes;* which are never convoked except at the acceſſion of a new ſovereign to the throne, to adminiſter to him an oath in the name of the nation, and ſwear fidelity. On this occaſion, letters of convocation are ſent to all the grandees, to all titled perſons of Caſtile, to all the prelates, and to every city which has a right to ſend deputies to the Cortes. The two firſt claſſes repreſent the nobility; the prieſts, the body of the clergy, and the cities which depute one of their magiſtrates, repreſent the people.

The laſt time that the Cortes was aſſembled was in 1789, at the coronation of the reigning ſovereign. Its ſeſſion was continued for three months, the Count de Campomanes acting as preſident, who on this occaſion received the title of governor of the council of Caſtile, the functions of which office he had exerciſed alone for ſeveral years before. The Cortes were compoſed of at moſt a hundred perſons; for it is not every province of Spain that ſends deputies to them. Gallicia has her own ſeparate. That part of Old Caſtile known by the name of *Montanas de Sant Ander*, is repreſented by the city of Burgos, which diſputes the precedency, at the aſſembly of the Cortes, with Toledo. Navarre, the lordſhip of Biſcay, and Gurpuſcoa, have their particular ſtates, and theſe different provinces take an oath to the new ſovereign by means of deputies, which for that purpoſe they diſpatch to court.

This national aſſembly, however unſhapen, and incomplete it be, at one inſtant ſeemed to feel its authority, and was on the point of manifeſting it. Already had ſome intrepid orators prepared themſelves to expreſs their grievances, and to point out the moſt intolerable; (it might have been the ſignal of a revolution); when the court anticipated the intention, as if it foreſaw what was about to happen in France; and civilly diſmiſſed the Cortes, who patiently diſperſed.

Except theſe convocations, of which there have been but three in the preſent century, and which only gave room for vain formalities, recollection, and regret, the Cortes of the whole kingdom have not been aſſembled ſince 1713, when Phillip V. convoked them to give their approbation to the pragmatic ſanction, which changed the order of ſucceſſion to the throne.

It is well known that by a law, of which it would be as difficult perhaps to indicate the real origin, as that of our pretended Salic law, women aſcended the Spaniſh throne in caſe of proximity of blood. This mode of ſucceſſion is known under the deſignation of *Caſtiliaro* or *Cognato*, in oppoſition to that called *Agnato*, which excludes females entirely. Philip V., being deſirous of aſſimilating in meaſure the courſe of ſucceſſion in Spain, with that of the country which gave him birth, in ſpite of his predilection for deſpotic reſolutions, conceived it would be wiſe to obtain the conſent of the Cortes towards ſanctioning this reſolution. He was in poſſeſſion of great authority; in a twelve years' war he had effected the ſubjugation of his kingdom; he ſaw all Spain unequally divided between ſubjects devoted to him, who could have no motive for reſiſtance to his will, and diſcontented ſubjects that he had effectually curbed. He relied therefore upon the docility of the Cortes, and was not diſappointed. They acknowledged, and adopted the new order of ſucceſſion, which calls to the throne the male heirs, to the excluſion of the female, however near the conſanguinity; who cannot accede to it, but in caſe of the total abſence of any male deſcendant from the reigning family. There is however ſomething more abſolute than the authority of the moſt deſpotic monarchs; I mean public opinion,

and

and the indelible predilection of a people to its antient laws and cuſtoms. An attachment to the old mode of ſucceſſion ſtill exiſts in the hearts of the greater part of the Spaniſh nation, and it is more than probable, if once a queſtion were to ariſe which might have to be decided either according to this ancient law, or the pragmatic ſanction of 1713, it would not be determined in a peaceable manner. Happily for Spain this poſſible poſition is not likely ſoon to occur, ſince among the ſix children of his Majeſty there are three males. In the time of my firſt viſit to Spain, there was a period when this delicate queſtion without being conſidered an idle one, was much under diſcuſſion; this was, when the preſent King, then Prince of Aſturias, ſaw moſt of his male children fall off in their infancy, and was threatened with having no progeny but what were female. In caſe of the realization of this apprehenſion, the Caſtilian order of ſucceſſion would have nominated to the throne the eldeſt of the Infantas, while the pragmatic regulation of 1713 would have pointed to one of the two brothers of the King, or their male dedeſcendants, and Europe might again have been enſanguined for the purpoſe of deciding the diſpute.

But let us return to the Cortes, and ſee what remains of their authority. They are ſtill conſulted, for the ſake of form, in certain caſes, when for example it is in agitation to grant letters of naturalization to a ſtranger, but then the members of which they are compoſed correſpond with each other, without aſſembling. A faint image of them, however, remains in an aſſembly, which conſtantly reſides at Madrid, under the name of *Diputados de los Reynos* (deputies of the kingdoms.) At their breaking up in 1713, it was regulated, that they ſhould be repreſented by a permanent committee, whoſe office it ſhould be to watch over the adminiſtration of that part of the taxes, known by the name of *Millones*, and which had been granted in the reign of Philip II. with the formal conſent of the Cortes, upon certain conditions, which the monarch ſwore to obſerve, and to watch the performance of which the committee of *Diputados* was appointed. The Cortes alſo authorized it to ſuperintend the diſpoſal of the *Millones*. But in the year 1718, the Cardinal Alberoni, whoſe ardent and imperious mind diſdained all reſtraint, tranſferred it to the hands of the ſovereign. From that time the committee held no more of the ſtate revenues than the ſmall portion neceſſary to pay the ſalaries and defray the expences of the members. Theſe are eight in number, and are choſen in the following manner:

But firſt it will be proper to obſerve, that the diviſion of Spain into kingdoms and provinces, ſuch as Gallicia, the Aſturias, the kingdom of Leon, the kingdom of Valentia, Andaluſia, &c., as deſcribed in maps and geographical treatiſes made out of the peninſula, are ſcarcely known in practice. Spain preſents as ſtrange and even a more complicated medley, than what France did previous to the Revolution.

The three provinces of Biſcay, Navarre under the title of kingdom, and the Aſturias as a principality, form ſeparate ſtates, which are without cuſtom houſes, intendants and almoſt every thing pertaining to fiſcal ſway. The reſt of the monarchy, ſubject to its authority, is divided into twenty-two provinces belonging to the crown of Caſtile, and four belonging to that of Arragon. Theſe twenty-ſix provinces differ materially in extent; for example, all Catalonia which pertains to Arragon forms but one province, while in Caſtile ſome are no more than three or four leagues ſquare; each has its ſeparate intendant, and may be compared to our generalities.

The *twenty-two provinces of the crown of Caſtile* are the kingdom of *Gallicia*, the provinces of *Burgos*, *Leon*, *Zamora*, *Salamanca*, *Eſtremadura*, *Palencia*, *Valladolid*, *Segovia*, *Avilas*, *Toro*, *Toledo*, *La Mancha*, *Murcia*, *Guadalaxara*, *Cuenca*, *Soria*, *Madrid*, and laſtly *Andaluſia*, which comprizes four provinces ſtill deſignated as kingdoms; a name which

they bore in the time of the government of the Moors, that is to say, *Seville*, *Cordova*, *Jaen*, and *Grenada*.

The four provinces of the crown of Arragon, are the kingdom of *Arragon*, that of *Valentia*, the principality of *Catalonia*, and the kingdom of *Majorca*.

This is not the only diviſion by a great many. Spain is divided into thirteen military governments, twelve of which have chiefs, who bear the title of *Captains General of Provinces*; the commandant of Navarre alone having that of *Viceroy*. It is moreover divided into dioceſes, which have different boundaries to what the provinces have; and into juſticiary partitions which we ſhall notice as we proceed.

But the principal of all theſe diviſions, notwithſtanding it does not comprize the whole monarchy, that which the greater part of the acts of government are to have effect upon, is the diviſion which partitions Spain into *the provinces of the crown of Caſtile, and thoſe of the crown of Arragon*. Two parts of the monarchy which differ from each other as well with reſpect to the adminiſtration, as the ſpecies and collection of taxes; a diſtinction which had its origin at the time when Caſtile and Arragon were united by the marriage of Iſabella and Ferdinand the Catholic.

Los Diputados le los Reynos, weak remnants of the Cortes, are choſen according to this diviſion. All the provinces of Caſtile unite to name ſix; Catalonia and Majorca one; and the regencies of Valencia and Arragon elect the eighth. Theſe deputies ſit but for ſix years, at the end of which a new nomination takes place. As a relict of their ancient rights, they ſtill retain the privilege of being, by virtue of their places, members of the council of Finance, by which the ſovereign communicates to the nation the neceſſity of levying any new tax; and the approbation they are ſuppoſed to give to the royal will is a ſhadow of that conſent of the Cortes, without which taxes could not formerly be augmented. But it is eaſy to preceive how feeble this rampart of liberty muſt be, which is only formed of a ſmall number of citizens, who poſſeſs but little real power, are under the controul of government from which they expect favours and preferments, and who, after all, repreſent only a part of the nation.

The provinces of Biſcay and Navarre, which hold aſſemblies and have particular privileges, ſend alſo, on ſome occaſions, their deputies to the throne, but they form no part of the *Diputados de los Reynos*, and their conſtituents fix at pleaſure the object and duration of their temporary miſſion.

We may perceive from this ſketch how little the ſovereign authority is limited in Spain. The councils are the organs of his will, and at the ſame time the depoſitary of the laws which emanate therefrom; his miniſters are the agents of it. For a great part of the late century they have been the only perſons connected. The King is habitually cloſeted with each of them ſeparately. In any knotty caſe they are aſſembled in a *Junta*, in order that he may obtain their collective opinion. Up to 1718, their authority was counterbalanced by the council of ſtate; but the ambitious Cardinal Alberoni, at that epoch, thought fit to releaſe himſelf from its interference. The council of ſtate continued to be the moſt honourable corps in the nation but ceaſed to aſſemble. The place of counſellor of ſtate is now only honorary, with a conſiderable ſalary annexed to it, and furniſhes the ſovereign with the means of rewarding thoſe of his ſubjects who have deſerved well of the ſtate. The various offices of adminiſtration generally lead to this appointment at the end of a few years.

But in the month of February 1792, a few days after my arrival at Aranjuez, Count de Florida Blanca, who had drawn on himſelf the diſpleaſure of the queen, and who had either the boldneſs, or impolicy to ſlight the young Duke de la Alcudia, whoſe credit with the royal couple was every day augmenting, Florida Blanca whoſe thoughtleſs audacity

audacity was about to plunge his country into a war which had no motive, and was wanting even of a ſpecious pretext in the midſt of the moſt perfect ſecurity as he conceived, was diſmiſſed to make room for Monſieur D'Aranda, who was as little prepared for this return of favour. He was made prime miniſter, and ſpite of his long experience he did not look upon himſelf as poſſeſſed ſingly of a ſufficient ability to ſupport the weight of the adminiſtration in ſuch a critical juncture, and conſequently urged the neceſſity of having recourſe to a council of ſtate, which was immediately aſſembled, and of which he was made the preſident. Notwithſtanding theſe wiſe precautions, Monſieur D'Aranda was blamed for having accepted the adminiſtration, for relying upon an apparent favour of the inſtability of which the leaſt inſight into what was paſſing at court muſt have ſatisfied him. His friends would have deemed him much more honoured by a noble refuſal, than in the acceptance of a ſituation, the ſplendor of which could yield no addition to his fame. His enemies, his rivals, the miniſters of the powers, who had already ſecretly conſpired againſt France, which he was ſuppoſed to favour, already predicted his ſudden fall, and no doubt gave their aſſiſtance towards it. For my part I who look for nothing, who fear nothing, from one ſide or the other, who for the ſeven months of his adminiſtration was continually near his perſon, I muſt ſay, that preſerving at all times a dignity frequently bordering on ſtiffneſs, he employed his means at this time in keeping the ſcourge of war at diſtance from his country, and that I cannot hold opinion with thoſe who conceive that this laſt ſcene of his political life has diminiſhed his pretenſions to general eſteem.

Succeeded in the month of October by the Duke of Alcudia, under pretence that his great age rendered it neceſſary he ſhould take repoſe, he ſupported this mortification with the ſerenity of a philoſopher. He preſerved the title of preſident of the council of ſtate, and filled the functions of it, until having expreſſed himſelf at one of the ſittings of this council with that rigid frankneſs which is peculiar to him, on the ſubject of the war with France, and which certainly ſhould have met with an apology in his experience, he was exiled to Jain, a city of Andaluſia. On the return of peace the king, baniſhing him for ever to a diſtance of thirty leagues from his coaſt, and capital, permitted him to withdraw to his eſtates in Arragon.

At this moment the council of ſtate is compoſed of thirty-two members, thirteen of which are a diſtance from Madrid upon different accounts, there are eleven other individuals of diſtinction, for the moſt part abſent, who without being admitted to the council, are conſidered as *honorary members;* the value of which is little more than entitling them to be qualified *your excellency*.

The title of councillor of ſtate, now but an honorary appellation even for thoſe who poſſeſs it in its plentitude, is the moſt diſtinguiſhed recompence or rather favour, which the king of Spain can confer. It is the reward of perſonal merit, of long ſervice in a political career, or in ſome important branches of adminiſtration: for ſome years back it is an appendage to the offices of miniſters of ſtate. The adminiſtration is divided into ſix principal departments.

1. *The miniſter of foreign affairs* is the directing miniſter, and receives, as a mark of diſtinction, the title of ſecretary of ſtate.

2. *The miniſter of war* has but a circumſcribed authority. He is preſident of the council of war, which is rather a tribunal than a board of adminiſtration; but the inſpectors of the infantry, and thoſe of the cavalry, dragoons, and provincial regiments, draw up a ſtatement of whatever relates to the corps of which they have the direction, and the miniſter at war has only to preſent the memorials they give in to the king.

3. The *minister of the navy* has no associates. The chiefs of the three departments, and the inspectors of the navy are named by the king on the representation of the minister; the naval ordinances prepared by him require only the sanction of the sovereign.

4. *The minister of finance* should properly be under the inspection of the superintendant-general of that department; but these two offices were some time since united, on account of the separation of them multiplying without necessity the springs of government. Charles III. had three ministers of finance: Squillaci, disgraced to satisfy the nation; Musquicz and Leruna, who maintained their situations for life. No one will presume to affirm that the finance department was well managed during their administration; but would their having an inspector over them have caused them to be better managed? The council of finance opposes frequently but a weak barrier to the acts of the minister of that department. The president of this council for a long time was the minister himself. An uncle of the prince of the peace at present holds the situation.

5. *The minister of the Indies* had the most extensive department in all the monarchy; for in him was centered the civil, military, ecclesiastical, and financial government of Spanish America; and it may be said, that in the whole political world there has never been a minister whose power was so extensive, since it comprehended the whole of that immense country which, from the north of California, stretches to the streights of Magellan. The authority of this minister was curbed only by the intervention of the council of the Indies; but for some years back the presidency of that council has been joined to the situation of minister for the Indies. Charles IV., in suffering a council to exist whose establishment is as ancient as the conquest of America, has divided the ministry for the Indies among the five other ministers. The largest portion of this division has fallen to the lot of the *minister of favour and justice.*

6. The department of the *minister of favour and justice* comprises what relates to judiciary and ecclesiastical affairs, as well in Spain as in the Indies; but his authority is circumscribed by the great chamber (*Camara*) of the council of Castile in Europe, and by the council for the Indies in what regards America. In 1796 there were no more than five ministers, the ministry for foreign affairs being filled by Don Manuel de Godoy, who in 1792 was created Duke de la Alcudia, and who after terminating a war which he entered into no doubt with great reluctance, received the name which above all others is glorious to a minister, that of *the Prince of the Peace.* I have known him intimately, and have observed his conduct on critical occasions. I shall neither be his censor nor apologist; all that I shall say of him is, that history furnishes few examples of so much good fortune, and that so rapidly attained: his success no doubt creates envy; however, few are displeased with it, since he supports his station with dignity, and shews, by the use he makes of the favour he enjoys, that he is not altogether unworthy of it.

In his person is concentered almost every dignity in Spain. He is a knight of the grand order of Charles III., as well as of the golden fleece; he is a grandee of the first class; he enjoys the title of prince, which no nobleman of Spanish extraction ever bore before him: in addition to these, he is prime minister, a councillor of state, captain-general of the armies, inspector and chief of four companies of *gardes du corps*, &c. &c. and possesses (the source of all these favours) the particular esteem of the king and queen. To sum up all, nature, in unison with fortune to bless him with every qualification which can entitle him to claims on happiness, has endowed him with a captivating exterior, and what is of greater value, a sound mind, and a good and benevolent heart *.

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* In 1798, the French government conceived it had right to complain of him, and employed its influence at the Spanish court to drive him from the ministry for foreign affairs; but it could not estrange him the

In 1793 the *adminiſtration of finance* was in the hands of *Don Diego Gardoqui*. He had been diſpatched from Bilboa, where he had a houſe of buſineſs in 1781, as *chargé d'affaires* to the United States on the part of Spain. He was afterwards appointed conſul-general in England, and then ſucceeded Lezena, who died, in the adminiſtration of finance. He began his career with favourable auſpices, having to ſucceed a man who had rendered himſelf ſo odious to the people, that it was with difficulty his remains could be carried in quiet to the tomb. Some addreſs notwithſtanding was requiſite to M. Gardoqui to maintain his ground, ſurrounded as he was by the embarraſſments into which his department had fallen; and ſome courage to ſupport the burthen of the war in which Spain was engaged with France. After having conducted the veſſel of finance for the ſpace of ſix years, with more good fortune than capacity, through the dangerous navigation which it had to paſs, he was nominated ambaſſador to Turin; M. de Varela ſucceeded him, who, recently promoted to the miniſtry of marine, had evinced greater aptitude for financial matters than for military affairs.

They both died ſhortly after; and at preſent the miniſtry of finance is in the hands of Don Michael Cayetano. This nobleman had filled the poſt of adminiſtrator of the little iſland Ivica, one of the Baleares, for ſeveral years, and had vivified it by eſtabliſhments which manifeſted at the ſame time his wiſdom, and his attachment to regularity. On his return he was recommended to the prince of the peace, by the Dutch ambaſſador Walkenaer, a man of ſenſe, and an eminent judge of merit of different deſcriptions. The account he gave of his little adminiſtration, the warmth with which he diſcloſed the plans of amelioration which he had conceived, made him be eſteemed capable of employing his abilities in a much wider field: he was raiſed to the ſtation of miniſter of finance; a verſe has been applied to him, which I am at a loſs to determine whether the offspring of envy or rigid juſtice,

> "Who ſhines within his proper ſphere,
> Promoted is no more a ſtar."

In 1793 M. de Valdez was *miniſter of the navy*, and had managed his department with loyalty and wiſdom from the period of the death of Caſtejon. The court and the nation would yet have been better ſatisfied with him, if during the war with France he had joined to theſe good qualities that activity which circumſtances exacted. On the concluſion of peace he obtained what for a long time he had been deſirous of, an allowance to reſign, and was ſucceeded by *Don Pedro Valera*, who had acquired conſiderable experience in the adminiſtrative department of the navy: he found that great neglect had exiſted in this office, and on his ſucceſſion purſued his plan of repairs with a circumſpection bordering on ſlowneſs. His promotion to the miniſtry of the navy did not meet with general ſuffrage, and ſhortly his conduct diſguſted many of the moſt diſtinguiſhed perſons in the navy; a dangerous matter at the eve of a new maritime war: he was therefore removed to the head of the department of finance, and *Don Juan de Langara* took the adminiſtration of the navy. This admiral, notwithſtanding the ſpecies of diſfavour into which he had fallen, from the famous check which a Spaniſh ſquadron under his command met with in 1780, had acquired the eſteem of the public by his talents and his loyalty. At that time he commanded the ſquadron at Cadiz; it was not long, however, that he maintained this appointment, to which he had been called by the

the royal favour, which he inceſſantly enjoyed. It may, on the contrary, be affirmed that theſe attempts ſo far from injuring him, but ſerved to enhance his credit, although leſs openly ſhewn; he is, in fact, the prime miniſter, and inviſibly the chief of every department. He has been ſucceeded in the office for foreign affairs by three other miniſters, of whom we ſhall ſpeak as we proceed.

voice

voice of the nation. At preſent he is captain-general of the navy, and councillor of ſtate, and lives peaceably at Madrid, in poſſeſſion of that eſteem he has ſo well earned.

After his reſignation, the miniſtry which he left vacant was given *ad interim* to *Don Antonio Caballero*. But at the beginning of this year an admiral generally eſteemed, *Don Domingo Grandellana*, was appointed miniſter of the navy.

The *adminiſtration of the war department*, after the death of *Lerena*, was entruſted to *Count Campo Alange*, who retained it up to the concluſion of peace with France; he was then named ambaſſador to Vienna, and is now gone in that capacity to Liſbon. His ſucceſſor as war miniſter was Don Miguel Joſeph de Aranza, a ſoldier of diſtinguiſhed merit, who, after being employed in foreign negociations, had filled the intendancy of the kingdom of Valencia with general approbation. Soon after he made way for *Don Juan Manuel Alvares*, the uncle of the prince of the peace, and was ſent as viceroy to Mexico, then in rather critical circumſtances, which were not however above his capacity. A ſort of fatality rapidly ſnatched him from this deſtination, and he now lives retired, but not in diſgrace, at Madrid, and is a councillor of ſtate. He has recently been pointed at as a fit perſon to be employed on ſome important miſſion.

Don Juan Manuel Alvares did not long retain the *war department*; he as well has taken his place in the council of ſtate. His ſucceſſor *ad interim* was the ſame *Don Joſeph Antonio Caballero*, already employed in the departments of favour and juſtice, and the navy, who thus was for a time the miniſter, with the moſt upon his hands of any in Europe, and who, if competent to the duties he had to fulfil, muſt at the ſame time have been one of the moſt ſkilful.

The adminiſtration of favour and juſtice, which was the allotment in 1792 of *Don Pedro Alcuna*, a friend of the Duke de la Alcudia, paſſed afterwards to *Don Eugenio de Laguno*, an enlightened, and at the ſame time a modeſt man, for a long time at the head of the office for foreign affairs; and who, when that department was rather prematurely confided to the Duke de la Alcudia, aſſiſted the young miniſter, by imparting the fruits of his long experience. He did not long retain the office of miniſter of favour and juſtice, which perhaps required a man of greater activity, but ſought for the *otium cum dignitate* in the council of ſtate, and died ſhortly after.

His immediate ſucceſſor is one of the moſt enlightened men in Spain, one of the moſt perfect philoſophers I have ever met with, *Don Gaſpard Melchior de Jovellanos*, a perſon who at the cloſe of my laſt edition I had pointed out as one among the men of merit who languiſhed in oblivion. It is pretended that the hopes formed of him have not been realized. But may not this be the language of envy, or at leaſt of thoſe enemies among a certain claſs of men, which will yet be formidable to Spain for a length of time to come, and whom the philoſophical intrepidity with which he has oppoſed certain abuſes has rendered inveterate againſt him? However it may be, the diſgrace of M. de Jovellanos was as ſudden as that juſtice which called him from his ſtate of inaction has been tardy in his operation. He is retired to his province, where he cultivates literature and the uſeful ſciences.

He was replaced by the ſame *Don Joſeph Antonio Caballero*, of whom we have before ſpoken, and who thus had at once three important employments, being miniſter of favour and juſtice for conſtancy, war miniſter *ad interim*, and miniſter for naval affairs, the functions of which office he attended to up to the period of the recent nomination of admiral Grandellana.

At preſent (May 1802) there are four miniſters in Spain. *Don Fedro Cevallos*, for foreign affairs; *Don Miguel Cayetano Soler*, for finances; *Don Joſeph Antonio Caballero*, for

for the department of favour and juſtice, as well as that of war; and *Don Domingo Grandellana*, for naval affairs.

The ſtability of the miniſtry under Charles III. was one of the moſt remarkable circumſtances of the Spaniſh government. When this ſovereign had once given his confidence to a miniſter, incapacity, misfortune, nothing cauſed him to withdraw it. His miniſters were conſequently almoſt certain of retaining their employments for life; and this certainty, valuable upon many accounts, was not the leſs a ſpur to their activity. If it left them a wide field for the plans which they formed, it ſecured them impunity for prevarication, and afforded time for abuſes to take deep root. Under the preſent government, has not the other extreme been rather too much followed? The chief adminiſtration in the year 1792 alone has paſſed into no leſs than three hands, and I had to treat with three ſucceſſive miniſters of different character and opinions, upon the moſt knotty points.

Five years after, the adminiſtration of foreign affairs was entruſted to Don Franciſco Saavedra, with the public voice in his favour, to which I ventured to join my recommendation. Bad health was either the cauſe or the pretext of his premature retirement. He was ſucceeded *ad interim* by a young man who, after diſplaying ſome genius abroad in a political capacity, was made chief of the office for foreign affairs. Don Louis Marcano de Urgueya, who quickly became a great favourite, but this favour it appears was miſplaced. Public diſgrace became the price of his imprudence, and he was confined in the caſtle of Pampeluna.

The department which he filled was definitively given to *Don Pedro Cevallos*, the head of an ancient family of Old Caſtile. After ſtudying at Valladolid, intendedly for the bar, he was ſent as ſecretary of embaſſy to Portugal. On his return to Madrid, he married a relation of the prince of the peace, and was afterwards appointed as ambaſſador plenipotentiary to Naples; but in conſequence of differences ariſing between the two courts, was prevented from proceeding. From what is known at preſent of this miniſter of ſtate, it appears that his modeſty and prudence afford a ſtriking contraſt with the conduct of his predeceſſor. One cannot here help obſerving, that in four years that Charles IV. has reigned, he has had ſix miniſters of foreign affairs; while his father during the whole of his reign of nine-and-twenty years, had but three, two of which, M. Wall and M. de Grimaldi, ſpontaneouſly reſigned, and the third ſurvived him.

Fewer changes in the preſent reign have taken place in the other departments of miniſtry.

The Spaniſh miniſters are enabled to give themſelves up to the labour which their different employments require better than thoſe of any other court. Nothing can be more regular than the life which they lead, an airing is almoſt the only amuſement they take. From the arcana of their cloſets they hold correſpondence with the extremities of the globe; without, their horizon is circumſcribed within half a league's diameter. Their chief company is their clerks, who are accuſtomed to live at their table. This mutual conſtraint has ſome trifling inconveniencies; but the conſequences are, a more cloſe union between the principal and his ſubalterns, and a greater regularity of connection in public affairs. Thoſe who expedite them under the eyes of the miniſters are not, it is true, ſimple clerks, they may with more propriety be compared to our head clerks in different offices. In order to obtain appointments of this deſcription, it is generally neceſſary that proofs of talent ſhould have been manifeſted previouſly in ſome occupations of truſt. In the office for foreign affairs, for example, almoſt all the principal clerks have been attached as ſecretaries to ſome diplomatic miſſion, and from that employment frequently paſs to the ſituation of plenipotentiaries or ambaſſadors. There

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are at preſent ſix of them who repreſent their ſovereign at foreign courts; remarkable ſingularity in a deſpotic government, in which one ſhould imagine intrigue and favour would diſpoſe of places, and which in this reſpect may ſerve as a model for free governments.

I have oftentimes in theſe Spaniſh offices met with at leaſt the appearance of haughtineſs, but frequently it is no other than a veil thrown over kindneſs; it does not prevent the adminiſtration of juſtice; and, let whatever will be ſaid, I have reaſons for believing that corruption is as rare in them as diſcretion is common. But how ſlow, how methodical, how wearifome their progreſs! How much are they to be pitied, thoſe who play the part of petitioners, whether upon their own account or that of their country.

CHAP. VI.—*Amuſements of the Court of Spain.—Gallery of paintings, ſtatues.—Manufactory of plate glaſs.—Hunting match.—The Chartreuſe of Paular.*

THE reſidences of the court of Spain (Los Sitios) have very few reſources of amuſement. They have no plays, no public games, no large aſſemblies, except on days of ceremony; and conſequently theſe places are not inhabited, except by a very few perſons whoſe ſituations oblige them thereto, at any other period than that of the excurſion to Aranjuez in the ſummer; that of St. Ildefonſo is almoſt deſerted, ſo that the ſociety of the royal perſonages is for the moſt part reſtricted to thoſe whoſe ſervices require their attendance. The queen when princeſs of Aſturias, except when taking an airing at the ſtated hours, paſſed the greater part of her time in private, where ſhe enjoyed no other amuſements than muſic and converſation. The prince, her huſband, never left her, except to accompany the king his father to the chace, oftentimes twice in a day. Since their acceſſion to the throne, they have ſwerved very little from the ſame uniform life; but the ſtrict etiquette obſerved has been ſomewhat leſſened. They occaſionally appear for a ſhort time at the entertainments given by the grandees and foreign miniſters; a condeſcenſion never ſhew by Charles III.; but they never go to the play, nor even to the bull-fights.

The king during his father's life patronized the fine arts; he had made a collection of good paintings of the different ſchools, before he inherited one of the largeſt and moſt valuable galleries in Europe.

The collection of the court of Spain is not conſidered inferior to any, unleſs it be to that of the court of France, and that of the Elector of Bavaria. It is principally at the Eſcurial and Madrid. The palace at Ildefonſo formerly contained a great number of paintings, but the galleries of Madrid and Aranjuez have been enriched by their removal. There remains, however, ſtill a ſufficiency to occupy the attention of an amateur for ſeveral hours.

As ſoon as you enter the anti-chamber of the king's apartments, there paſſes in review, as in an hiſtorical gallery, firſt an elegant portrait of Louis XIV. by Rigaud; and next, that of Louis XV. when a child; thoſe of the regent, the Duke of Vendome, the laſt Duke of Parma, of the houſe of Farneſe, and his ducheſs; as alſo thoſe of Charles III., when he went to take poſſeſſion of the kingdom of Naples; of Philip V., on his arrival in Spain; and of the archduke his rival. The chamber adjoining has a view of one of the fineſt caſcades in the garden. This room is decorated with ſeveral paintings, among which are ſome by Murillo and Solimena. In the adjoining apartments, a fine one of St. Sebaſtian by Guido; a Flemiſh family by Rubens; a picture by Pouſſin; two heads by Mengs; the portraits of the Princes of Conde and M. de Turenne, upon the ſame canvaſs, by Vandyck, &c. &c.

In a gallery on the ground floor, and which occupies the whole front towards the gardens, beſides ſome fine paintings, and two charming heads in moſaic, there is a conſiderable number of antiques, the greater part of which was bought in Italy by Philip V., and formerly compoſed a part of the cabinet of Chriſtiana of Sweden. Thoſe which moſt engaged my attention were a cylindrical altar, on which the proceſſion of Silenus is ſculptured in bas relief; a coloſſal Cleopatra; a ſtatue of Jupiter wielding his thunder; ſeveral Venuſes of the natural ſize; eight muſes a little mutilated, in which modern and unſkilful hands have endeavoured to repair the injuries of time, and of which the drapery is remarkable for its lightneſs; two groups which are baniſhed to a corner, as they retrace the unimproving fictions of mythology, the adulterous amours of Jupiter with Leda and Ganymede, who careſs without ſuſpicion the immodeſt birds, whoſe figure the god has aſſumed, &c. But the antique ſculptures which more particularly merit the attention of connoiſſeurs, are young Faunus carrying a kid, and a group of Caſtor and Pollux, two original maſter-pieces of antiquity in perfect preſervation, copies of which are met with every where by the ſide of thoſe of Venus de Medicis, the Laocoon, the Apollo Belvidere, and the Farneſian Hercules.

In an apartment in the gallery the fineſt marbles of Spain, in columns, vaſes, and buſts, ſeem to vie with the productions tranſmitted to us from antiquity; yet notwithſtanding the excellence of theſe modern performances, they only ſerve to make more conſpicuous the ſuperiority of their forerunners. A ſmall corridor, adjoining to the gallery, contains in piles every thing for which no place could be found in the latter, Egyptian ſtatues, fragments of columns, bas reliefs, buſts, and other antiques, conſigned to duſt, deſtructive inſects, and whatever anticipates the ravages of time.

Without the caſtle of St. Ildefonſo, proofs of the attention of the monarch, and his taſte for uſeful eſtabliſhments, appear on every ſide. The Count de Florida Blanca, who had at heart the public weal, and poſſeſſed much information on many points, was affected at the ſight of the crowd of women and children who led an idle and wandering life about St. Ildefonſo. In order to afford them employment, he propoſed the eſtabliſhment of a linen manufactory at the very reſidence of his majeſty, and immediately under his eyes. At the beginning of 1781 it had not been thought of; and, rare example of celerity in Spain, before the month of Auguſt 1783, there were upwards of twenty looms employed in the new manufactory, and two great machines for preſſing and waſhing the linen.

To ſet them going, a ſkilful perſon, whoſe manufactory was on the decline for want of encouragement, was ſent for from Leon. Since its firſt inſtitution this eſtabliſhment at St. Ildefonſo has been viſibly improving.

Near this new eſtabliſhed and much wanted manufactory there is one of luxury, begun in the reign of Philip V.; this is a manufacture of plate-glaſs, the only one of the kind in Spain. It was at firſt no more than a common glaſs manufactory, which ſtill exiſts, and produces tolerably good bottles, and white glaſſes extremely well cut: this was the firſt ſtep towards a far more enlarged undertaking. The looking-glaſs manufactory of St. Ildefonſo may be compared with the fineſt eſtabliſhments of the kind. It was begun in 1728, under the management of a Catalan, and was brought to perfection under Ferdinand VI. by a Frenchman named Sivert. Glaſſes are run here of all dimenſions, from common ſquares to thoſe of the greateſt ſize. They are not ſo clear, and may be leſs poliſhed than thoſe of Venice and St. Gobin; but no manufacture has yet produced them of ſuch large dimenſions. In 1782 I ſaw one caſt a hundred and thirty inches long by ſixty-five wide. The enormous table of braſs on which the liquified matter was caſt, weighed 19,800 pounds, and the cylinder which rolled over it to

render the ſurface even weighed 1,200 pounds. In the vaſt edifice where this operation is carried on, an operation well worthy of examination throughout its whole proceſs, there are two other tables ſomewhat ſmaller, and twenty ovens, wherein the glaſſes yet hot are placed, and remain hermetically cloſed for the ſpace of from fifteen to five-and-twenty days, in order to cool by degrees. Such as ſplit, or have any defect, are then cut to make mirrors, glaſs ſquares, or carriage plates. The maintenance of this manufactory is very expenſive to the king. I reckon that if the general coſt of the eſtabliſhment, and the numerous drawbacks be computed, ſome of the plates ſtand him in 160,000 rials.

In a long gallery adjoining the manufactory they are made thinner by manual labour, by rubbing one upon the other, ſand and water being placed between, the ſand of different degrees of fineneſs, according to the ſtage of the work. The upper glaſs being kept continually in motion, while the under one is at reſt, it conſequently becomes thinner much the ſooneſt, ſo much ſo, that five of the firſt are reduced to their proper thickneſs before the latter is ſufficiently ground. This labour is weariſome and monotonous in the extreme; one glaſs keeping the ſame workman employed conſtantly for more than two months.

When ſufficiently ground on both ſides, they are poliſhed in the following manner: the largeſt in the manufactory itſelf by the hand; the ſmaller are carried to a machine, where thirty poliſhers are moved by water: theſe poliſhers are a ſort of ſquare boxes, placed firmly on the glaſs, and ſhod with very even felt, loaded with lead internally, and are moved horizontally by the impulſe of a handle of wood to which they are faſtened; beforehand the plate is rubbed over with a ſpecies of emery, the production of a quarry in the neighbourhood of Toledo. This emery is divided into three claſſes, the coarſeſt of which is uſed firſt, that of a middling quality is next uſed, and the fineſt the laſt; after this, the glaſs is covered with a red earth (almagro), and is placed under the poliſher. This proceſs is carried on for each ſide of the glaſs, and takes up from eight to ten days.

An attempt was made to ſubſtitute mechaniſm for manual labour in grinding down and thinning the plates, and, for this purpoſe, machines were tranſported from France to St. Ildefonſo; but the directors of the eſtabliſhment perceiving that their adoption did not greatly accelerate the operation, and was equally expenſive, returned to the original plan.

The plates thus ground and poliſhed are at length taken to Madrid to be ſilvered. The king reſerves ſome of the fineſt to decorate his apartments; of others he makes preſents to the courts moſt intimately connected with that of Spain. In 1782, Charles III. ſent ſome to Naples one hundred and thirty inches in height by fifty-four inches in breadth, and ſome time after his Majeſty added ſome of the ſame dimenſions to the preſents he ſent to the Ottoman court, with which he had juſt concluded a treaty.

The reſt of the produce of the manufactory of St. Ildefonſo is ſold at Madrid, and in the provinces, for the King's account. In vain has a prohibition of introducing any other glaſs within a circle of twenty leagues around been iſſued in order to ſecure a ſale; it may eaſily be imagined that the proceeds cannot anſwer the expences of ſo extenſive an eſtabliſhment, which, except the article of wood, is diſtant from all the raw materials it employs. Situated as it is, far inland, ſurrounded by lofty mountains, and at a conſiderable diſtance from any navigable river or canal, it deſerves to be numbered among thoſe coſtly and ruinous eſtabliſhments of luxury, which contribute to the ſplendor of the throne, but to the impoveriſhment of the people.

At the diſtance of a quarter of a league from the caſtle runs the little river Ereſma, which afforded Charles III. one of his moſt favourite recreations, that of fiſhing. Its banks were rugged and crooked, he levelled them, and made a cauſeway, or, where the ground required it, ſtone or ſod ſteps. This river, or rather ſtreamlet, is encloſed between two piles of rocks, grouped in the moſt romantic manner. Its limpid waters ſometimes run tumultuouſly over leſſer rocks in the bed of the river, or precipitate themſelves by natural caſcades, at intervals forming ſmall baſons, which ſerve as aſylums to the trout, which are met with in abundance. In ſome places this river is ſeparated by little meadows from copſes of green oak, with which that part of the country abounds. In others, tufted ſhrubs are ſeen upon the tops of the rocks, or hang waving from their ſides.

In the reign of Charles III. the court went once a year to alarm the Naiades of the Ereſma, with the noiſe of a general hunt. The rendezvous was about a league from the caſtle. Some days previous, a number of peaſants were ſent to the neighbouring woods and hills to drive before them the game with which the country plentifully abounds. The limits were by degrees narrowed, until the time fixed for rouſing the game. The ſport then was excellent: the deer ran in ſmall herds on all ſides, ſeemingly perceiving the danger into which they were driven, after which they faced about and endeavoured to brave the running fire of muſquetry that threatened them in the rear; but, obeying the impulſes of fear, and failing in their attempt, they paſſed in cloſer herds through the fatal defile where the King, his ſons, and the other princes, placed in ambuſcade, waited their arrival. Their agility now became their laſt reſource, and ſaved the greater number. Out of three or four thouſand, and ſometimes more, which thus paſſed in review, about a hundred fell. Some were killed dead upon the ſpot, others carrying away with them the mortal wound, flew to conceal their agony in the thickets. Their bodies, yet palpitating, were brought and arranged upon the field of battle. Theſe were numbered with a cruel pleaſure, for which a philoſopher would reproach himſelf, but which it is agreed to pardon in hunters. The whole court, and the foreign miniſters commonly took part in this amuſement, which was repeated towards the end of every viſit to the Eſcurial. The Counts of Artois and Dammartin were invited to a hunt of this nature, as they returned from the camp of St. Roch in 1782. They perhaps would have wiſhed for a leſs eaſy victory over the timid inhabitants of the woods, which they were accuſtomed to chaſe, and not coolly to maſſacre; but the foreſts of Compiegne and Fontainebleau never produced ſuch legions of fleet herds, filing off by thouſands before them.

Since the acceſſion of his preſent Majeſty to the throne, theſe hunts have not been periodical, but very frequent; their principal object has been to exterminate the numerous herds of deer, which lay waſte the fields of the countrymen who live in the neighbourhood of the royal reſidencies. On one journey to Aranjuez Charles IV. deſtroyed more than two thouſand, by having them driven before batteries of cannon loaded with grape-ſhot; and in 1792 and 1793, I perceived that this praiſe-worthy project had been followed up with ſufficient preciſion in the neighbourhood of his reſidences.

There is another place to which, during the viſit to St. Ildefonſo, his late Catholic Majeſty once went annually to ſpread the noiſe and terror which accompany the chace. I mean the environs of Paular, a monaſtery of Carthuſians, at the foot and on the other ſide of the ſteep mountains which command the caſtle. *El Paular*, one of the richeſt convents of the Carthuſians in Spain, and famous for its fine wool, is ſituated in a charming valley, watered by a conſiderable rivulet, which runs gently through the groves

and meadows. This ſtream drives a paper-mill, the noiſe of which is the only ſound repeated by the ſolitary echoes of the neighbourhood. A Frenchman managed this manufacture on the account of the monks ſome years ago, and ſeemed in this corner of the world to have forgotten both his country and language.

In the monaſtery of Paular there is nothing remarkable, except the great cloiſter in which Vincent Carducho has painted the principal events of the life of Saint Bruno.

I ſhall now accompany the reader to the caſtle of *Rio Frio*, three leagues from St. Ildefonſo. Charles III. came here once a-year to hunt after the Spaniſh faſhion; that is, to ſhoot, as the animals paſs by, at the herds of deer which, at all other ſeaſons of the year, browzed in quiet in the woods round this place. The caſtle of Rio Frio is ſituated in an extremely ſandy ſoil. And it appears inconceivable wherefore Queen Iſabella, who began to build it, reſolved on making it her laſt aſylum. That it might recal to her memory the new palace of Madrid, which neither ſhe nor her huſband had the good fortune to reſide in, even for a ſingle day, ſhe ordered it to be built after the ſame plan, but of leſs dimenſions. Her ſon Charles III. being called to the throne of Spain, her project of retreat vaniſhed, and the caſtle of Rio Frio was abandoned even before it was finiſhed.

CHAP. VII.—*The monaſtery of the Eſcurial.—Paintings, Pantheon, Library.—Environs of the Eſcurial.*

LET us now proceed towards the Eſcurial. At about three quarters of a league from St. Ildefonſo we paſs the Ereſma over a bridge, and arrive at Balſain, a village ſituated in a hollow ſhaded by thick woods. The kings of Spain had formerly a hunting-ſeat here, to which Philip V. occaſionally reſorted, and where he conceived the project of building St. Ildefonſo, in this wild country, intending to gratify at once his taſte for ſolitude, and the chace. The French ambaſſador, before the king built him a houſe in the village of St. Ildefonſo, reſided at this old caſtle.

As ſoon as we have paſſed it, we climb, for two leagues, the tops of the high mountains which ſeparate the two Caſtiles. The road is ſhaded by high pines, the tops of which are frequently loſt in the fogs which riſe from the bottoms of the deep vallies. The air becomes gradually colder as we approach the ſummits of the mountains; and when we arrived at the ſeven points of rocks (*los ſiete picos*), which, from St. Ildefonſo, have the appearance of an immenſe parapet wall, a new object preſents itſelf to the admiring eye. Before us we view the vaſt plains of New Caſtile, and perceive Madrid conſiderably within the bounds of the horizon over which the ſight wanders to an immenſe diſtance. We are here in another country, and find another climate and a different temperature. The traveller frequently leaves behind him clouds above clouds, to which the mountains ſeem to ſerve as boundaries, and inſtantly paſſes into the moſt ſerene air. He afterwards deſcends from this magnificent belvedere by a road which, for a long time, more reſembled a precipice, but the declivity of which about the year 1785, was made more gentle, and, at the end of two leagues, arrives at the town of Guadarrama, through which the great road paſſes from Paris to Madrid. He croſſes this road to follow that which leads to the Eſcurial, at which the court reſides ſix weeks in the latter part of the ſummer.

This famous monaſtery is ſituated at the midway, on the oppoſite ſide of the chain of mountains which terminate Old Caſtile. The choice which Philip V. made of this ſteep and bare ſituation, indicates the ſavage and gloomy character given to him by hiſtory. We will not, however, repeat its cenſures. Let us not ſpeak ill of him, as we approach this

this royal convent, where we perpetually hear him called *our holy founder*; where his aſhes are depoſited, and where his image every where meets the eye. This foundation, as is well known, was in conſequence of a vow made on the day of the battle of St. Quentin, at which, however, Philip was not preſent. It is known alſo, that he dedicated it to St. Lawrence, on whoſe feſtival it happened. In Spain it is called by the name of this ſaint (*San Lorenzo*) and every thing in the Eſcurial reminds us of the inſtrument of his martyrdom. It is not only ſeen upon the doors, windows, altars, rituals and ſacerdotal habits, but the edifice itſelf bears its form. It is a quadrangular building with the principal front to the weſt, behind which is a mountain; the oppoſite ſide which faces Madrid, takes the form of the ſhortened handle of a gridiron reverſed; and the four feet are repreſented by the ſpires of four little ſquare towers which riſe above the four angles.

I will not undertake with the Abbé de Vayrac and Colmenar, to give the number, no doubt exaggerated by him, of all the doors, windows, courts, &c. of this famous convent. In the whole, it certainly has ſomething awful, but it does not perfectly correſpond to the idea formed of it, from its reputation. there is nothing magnificent in the architecture; on the contrary, it has rather the ſerious ſimplicity ſuitable to a convent, than the ſplendid elegance which ſhould announce the reſidence of a great monarch. The front to the weſt alone has a fine portal formed by large columns of the doric order, half ſunk in the wall, and on each ſide two great doors of noble dimenſions. By this portal we paſs to an elegant ſquare court, at the bottom of which is the church. This principal entrance is never open for the Kings of Spain and the princes of the blood, except on two ſolemn occaſions. When they come for the firſt time to the Eſcurial, and when their remains are depoſited there in the vault which awaits them. Emblem of the gates of life, and eternity.

On this ſide, the door of the church is preceded by a fine periſtyle; over the front of which are coloſſal ſtatues of ſix kings of Iſrael, which appear as in equilibrium upon their ſlight pedeſtals. Theſe ſix kings had ſome ſhare in the founding or rebuilding of the temple of Jeruſalem, as we are informed by the inſcriptions upon the baſe of their ſtatues. The two in the middle are David and Solomon, to whom the ſculptor has endeavoured to give the likeneſs of Charles V., and Philip II. his ſon; ſo ingenious at all times is flattery, availing itſelf of the ſlighteſt reſemblances.

The front to the ſouth is entirely deſtitute of ornament; but in its four ſtories, including the baſement, rendered neceſſary by the inequality of the ground, there are nearly three hundred windows. The two great doors of entrance are on the oppoſite front. The whole edifice is built of hewn ſtone of a ſpecies of baſtard granite, which by its colour, become brown with time, adds to the auſterity of the building. The quarry where it was dug is in the neighbourhood of the Eſcurial, and it is ſaid that this was one motive for the choice of its ſite. It furniſhed blocks of ſuch conſiderable dimenſions, that three ſtones were ſufficient to form the chambranle, or caſe of the greateſt door-ways, and each ſtep of the principal ſtair-caſe is compoſed but of one.

When the court is not at the Eſcurial, it is a vaſt convent inhabited by two hundred monks, of the order of St. Hieronimus. At the arrival of the court the convent is transformed into a palace. The monks are baniſhed to the apartments in the ſouth and weſt ſides, and the principal cells become the habitations of the royal family, and the nobility and gentry of both ſexes, by whom it is accompanied. The King himſelf has his in the narrow ſpace which forms the handle of the gridiron. Philip II. ſeems to have wiſhed to make this a retreat, where ſovereign greatneſs might retire to hide itſelf beneath the ſhade of altars, and become familiarized to its tomb; and his ſucceſſors, faithful

to this vow of humility, ſtill content themſelves with the ſame modeſt habitation. It communicates, by a ſtair-caſe, with the church and veſtry, in which the arts united have diſplayed all their magnificence.

The church is in the form of a Grecian croſs, above which is a dôme. The whole building reſts upon pillars rather diſproportionately thick, within which are ſcooped out ſeveral altars. The architecture is ſimple but majeſtic. Several ſubjects from holy writ, and ſome ſacred allegories are painted in freſco in the dome, by the magical pencil of Luca Giordano. The great altar, which is aſcended by twenty ſteps, contains three different orders of architecture, one above the other, in the form of a mutilated pyramid: no expence has been ſpared in its decoration. Richneſs and elegance are united in its tabernacle. The columns are of the moſt precious marble; the interſtices are filled up with paintings by *Lucas Cambiaſo* and *Pellegrino Tibaldi*. Yet the whole has ſomething mean in its appearance, which forms a ſtriking contraſt with the majeſty of the edifice. But in revenge its two monuments are really beautiful; theſe perfectly accord with the firſt of the three orders of which it is compoſed, that is doric with fluted columns. The tombs are thoſe of Charles V., and Philip II. Theſe two ſovereigns are on their knees, and their majeſty ſeems to bend before that of the King of Kings.

They occupy the forepart of a kind of open chamber lined with black marble, by the ſide of the altar. There is ſomething at once ſolemn and pompous in the two monuments. The ſpectator, while contemplating them, cannot but profoundly reflect on the vain inſignificance of human greatneſs, and the abyſs in which it is ſooner or later ſwallowed up. Theſe reflections become ſtill more ſerious when applied to two ſovereigns, whoſe ambition, during their lives, put the whole world in commotion, and who are now condemned to eternal ſilence by the only law which they had not the power to avoid.

The two neareſt altars to the high altar are thoſe of the Annunciation and St. Jerome; theſe poſſeſs attraction for none but devotees and goldſmiths. Two great doors, upon which are two indifferent paintings by Lucas Cambiaſo, open and leave the eye dazzled with innumerable relics in vaſes, and caſes of ſilver and ſilver gilt, enriched with precious ſtones. There is alſo a large St. Lawrence of ſolid ſilver, upon the breaſt of which are ſome relics of this Martyr which his diſciples, no doubt, ſaved from the flames.

The church contains alſo ſome good paintings by artiſts of the ſecond order, but in the two veſtries, maſter-pieces of painting are diſplayed in ſuch profuſion as even to weary the admiration of connoiſſeurs. In the firſt, which is badly lighted, are three pieces by *Paul Veroneſe*, one by *Titian*, two by *Tintoret*, one by *Rubens*, and one by *Eſpagnolet*. The principal veſtry contains a much greater number, and is ſufficient of itſelf to give a ſanction to the fame, which the Eſcurial enjoys. We ſhall content ourſelves with noticing the pieces which will ſtrike thoſe the leaſt accuſtomed to value the productions of the arts. That which has the greateſt effect is the altar-piece, by Claude Coello, a Portugueſe, otherwiſe little known. It retraces a ſcene, of which the veſtry was the theatre. Charles II. accompanied by the nobility of his retinue, is repreſented on his knees before the holy ſacrament, held by the prior of the monaſtery; the monarch went thither publicly to ſupplicate pardon for the profanation of a hoſt, lacerated by impious hands, and revenged by a miracle. And although it be far from the beſt piece, there is none which leaves a greater impreſſion upon vulgar minds. Real connoiſſeurs, and thoſe who are dazzled by great names, prefer a fine holy Virgin by Guido; two paintings by Vandyck, one the woman taken in adultery, the other St. Jerome naked to the middle, and writing as he is dictated to by an angel, whoſe freſhneſs of complexion

produces

produces the moſt agreeable contraſt with the ſallow ſkin of the aged ſaint. A large picture by Tintoret, in which this painter has indulged all the caprice of his imagination, in giving a repreſentation of the Lord's ſupper. An aſſumption by Annibal Carracci; ſeveral pieces by Titian, two of which are admirable for the colouring, one a St. Sebaſtian of the natural ſize, and the other our Saviour diſputing with a doctor of the law; three by Raphael; one called *the pearl*, on account of its ſuperior excellence, is a holy family, in which the infant Jeſus has a grace, a juſtneſs of expreſſion, and an exactneſs of drawing which belongs only to this great maſter; and another, the viſitation, in which the modeſty of the virgin, and her embarraſſment on appearing before Elizabeth with the unexpected and already apparent ſigns of her pregnancy, cannot be too much admired.

Leſs celebrated artiſts have alſo contributed to the decoration of the veſtry. I ſhall mention but two: the *chevalier Maxime* and *Romanelli*. The firſt has exhibited the beauty of Guido's forms in the painting where Chriſt diſputes in the temple with the doctors, and the graces and ſweetneſs of the pencil of Albano appear in that of the latter; the Virgin ſeated, careſſed by her holy infant, and St. John the baptiſt. It may be imagined, without my ſaying it, that this veſtry contains, in large drawers, ſacerdotal ornaments, chandeliers, ſacred vaſes and the like, of the richeſt deſcription, which illuſtrate the magnificence of the kings of Spain more than their piety.

The ſame obſervation may be made on the pantheon, their ſepulchre, to which a door in the paſſage from the church to the veſtry opens. The ſtaircaſe is entirely covered with marble, as is alſo the inſide of the pantheon. This is divided into ſeveral chambers, each of which has its particular diſtinction. One of them is what is called the *podridero*, or the *rotting place*. Here the bodies of the kings and the royal family are delivered up to the firſt ravages of corruption. The bodies of the princes and princeſſes of Spain, who have not reigned, are depoſited in another. It is in this auguſt and diſmal aſſembly that the Duke of Vendôme is placed, as was M. de Turenne at St. Denis, among the remains of our kings. This I aſcertained from the regiſter of the monaſtery, in which I found an account of his remains being brought thither, the 9th of September 1712.

The real pantheon ſerves as the laſt aſylum for the kings and queens of Spain alone. A few rays of half extinguiſhed light with difficulty penetrate this cold abode. To ſupply the defect, a ſuperb luſtre, pendant from the cupola, is lighted up on extraordinary occaſions; but except in theſe caſes the curious are conducted by a flambeau into the middle of this motionleſs and ſilent aſſembly of ſovereigns. By the unſteady light of the flambeau we diſcover, oppoſite the door by which we enter, an altar and a crucifix of black marble upon a pedeſtal of porphyry. The reſt correſponds to this melancholy magnificence. The caſes which contain the bodies of the kings and queens are placed on each ſide of the altar, in three ſtories, and in different compartments, formed by fine fluted pilaſters of marble; the caſes are of bronze, ſimple, yet noble in their form. The pantheon is not yet full, but the empty caſes are ready to open to receive their depoſits. A ſalutary yet terrible leſſon, which kings have not refuſed to receive from the bold deſigns of an able architect.

Philip II. repoſes in the moſt elevated tomb of the firſt diviſion. He it was who laid the foundation of the pantheon; but it was not finiſhed till the reign of Philip IV. It has yet been open but to three ſovereigns of the houſe of Bourbon, the young king Louis I. who aſcended the throne in 1724, and died the ſame year, and queen Amelia, wife of Charles III. and Charles III. himſelf. Philip V. and his queen are interred at St. Ildefonſo; Ferdinand VI. and queen Barbara his wife, at Madrid, in a convent which they had founded.

The

The following well-known line cannot be applied to this temple of death:

Le temps, qui detruit tout, en affermit las murs *.

The ravage of time, ſeconded by the damps, has not ſpared even the marble. Here we are at once led to reflect on the frailty of man, whatever his rank, and the periſhable nature of thoſe works, which in his pride he dared to conſecrate to immortality.

The choir of the monks of the Eſcurial is above the great door of the church, and oppoſite the high altar. The walls are decorated with paintings in freſco, the ſubjects of which have relation to St. Jerome and St. Lawrence. The pulpit, notwithſtanding its enormous ſize, turns upon a pivot with ſurpriſing facility. Behind the choir is a maſter-piece of ſculpture; a Chriſt in marble, of the natural ſize; it is the work of Benvenuto Cellini, by whom the Conſtable de Bourbon was killed upon the walls of Rome.

From the ſides of the choir begins a gallery which runs along the two fronts of the church, and communicates by four doors to the firſt ſtory of the monaſtery; it is interſected by ſeveral ſpaces between the joints and pillars which ſupport the congregation. Thither I frequently went, that I might feel thoſe ſenſations, which the minds of perſons the leaſt devout are ſuſceptible of at the ſolemn aſpect of a temple. That of the Eſcurial diſpoſes one more than any other to ſuch meditations. Its maſs, the ſolidity of which has already ſurvived its founder, who ſleeps within its walls, almoſt two centuries, and will ſurvive him for twenty more; the memory of this imperious monarch, which for a long time paſt receives no other tribute there than funeral prayers, and whoſe ſhade is ſuppoſed to wander in this melancholy monument of his fear and his piety; the volume of a hundred voices making the roofs echo with the praiſes of the eternal Being; all theſe diſpoſe the mind to that ſerious reflection, which is far more pleaſing to the ſoul than the giddy diſſipations of the world.

But let us finiſh the deſcription of the other beauties contained within the Eſcurial. On leaving the gallery, one of which is on each ſide the church, we paſs a long corridor, called *The Hall of Battles*, becauſe the paintings repreſent ſeveral between the ancient Kings of Spain and the Moors. The attitudes, dreſſes, and lively colouring excite the admiration of all connoiſſeurs.

I cannot, however, avoid mentioning the two great cloiſters: they are paved with marble, and are excellently proportioned. The paintings in freſco of the lower cloiſter are, perhaps, more extolled than they deſerve. In ſeeking for the effects of perſpective, and brilliant colouring, one meets with diſappointment; but the admirer of heads full of expreſſion, and the great and vigorous forms of the ſchool of Michael Angelo, will return more than once to examine the principal events of the life of our Saviour, painted in almoſt coloſſal figures by Pellegrino Tibaldi, round the cloiſter.

Both the cloiſters are entered by narrow and obſcure corridors. The chief defect in the architecture of the Eſcurial, is that, in general, the principal objects are not placed ſo as to have the beſt effect. The portal and great ſtaircaſe are ſeen but by accident. There is a fine inner court ornamented with two rows of arches, of a ſimple but noble ſtile of architecture; the center is occupied by a ſmall temple, which is perhaps the moſt regular piece of architecture in the Eſcurial: but it ſeems to hide itſelf from the eyes of the curious.

The great cloiſter below, which communicates with the capitulary hall, is hung with ſeveral paintings by Titian, and one by Velaſquez, repreſenting the ſons of Jacob bring-

* Time, which deſtroys all things, has given ſtrength to its walls.

ing

ing him the bloody garment of their brother Joſeph; a painting the effect of which is admirable; a virgin by Raphael; a St. Jerom by Guerchino; three pieces by Rubens, and three by Spagnoletto. But the pieces moſt to be admired in the capitulary hall, are three maſterly paintings by Guido.

The grand cloiſter below has a communication with the old church of the monaſtery. This as well contains ſome paintings worthy of attention; ſeveral by Titian; three by Spagnoletto, remarkable for beauty of colouring; and one, by Raphael, which, for its beauty, nobleneſs of its figures, correctneſs of drawing, and every excellence that characteriſes the inimitable talent of this great maſter is ſuperior to all. I have ſeen connoiſſeurs view it with tranſport, and ſhed tears of admiration, before this ſublime maſter-piece, without theſe delicious impreſſions being weakened by the fantaſtical union of perſons it preſents: theſe are the Virgin Mary, Chriſt, and St. Jerom in a cardinal's habit, reading to them the bible, while the angel Raphael introduces to the divine group young Tobit, advancing with a timid air to preſent his fiſh. The laſt circumſtance has given this piece the appellation of *Madonna del Pez* (Our Lady of the fiſh) *. It is inconceivable how the genius of Raphael could ſtoop to this ſtrange compoſition, undoubtedly, preſcribed him, and yet in the execution leave no marks of ſuch compulſion. If his exquiſite taſte was not diſguſted by a diſſonance which ſhocks the leaſt delicate, what becomes of the rules of art, and the precepts of reaſon?

Even after admiring the Madonna del Pez, one may look with delight on the ſuperb piece of Titian (the laſt Supper) which takes up the whole breadth of the refectory of the monks.

In the upper cloiſter, among ſome paintings, not above mediocrity, we may notice a few by Spagnoletto, one particularly which repreſents Jacob guarding his flocks, and one by Navarette, known by the name of the dumb, and whom Philip II. called the Titian of Spain.

The ſtaircaſe which leads from the lower to the upper cloiſter, muſt not be paſſed over in ſilence. The four ſides of the frize and the ceiling are painted in freſco by Giordano, and repreſent the battle of St. Quintin, the accompliſhment of the vow of Philip II. and the arrival of that monarch at the celeſtial court.

On the firſt landing-place of the ſtaircaſe there are little cloiſters, which lead to the library of the Eſcurial, leſs remarkable for the number of volumes it contains than for the choice of them, and more particularly the Arabic and Greek manuſcripts. Art is exhauſted in its decoration; and if there be a defect, it is perhaps in its being too much ornamented. Every vacant ſpace is filled with paintings; the ceiling, which is vaulted, is ornamented with Arabeſques and figures for the moſt part coloſſal. Tibaldi, the maſter of Michael Angelo, has here diſplayed the frequently exaggerating vigour of his pencil; his forced attitudes reſemble contortions; his forms are ſo great as to become gigantic and almoſt monſtrous; the ſhelves which contain the books, and which are of precious wood, beautifully carved, appear trifling by the coloſſal figures of Tibaldi. Above the ſhelves are paintings in freſco by Barthelemi Carducho, which alſo ſuffer from the cauſe already mentioned; the ſubjects are taken from ſacred or profane hiſtory, or have relation to the ſciences of which the ſhelves below preſent us with the elements. Thus the council of Nice is repreſented above the books which treat of theology; the death of Archimedes at the ſiege of Syracuſe, indicates thoſe which relate to mathematics, &c.

The middle of the library is occupied by globes and tables; upon one of the latter is a ſmall equeſtrian ſtatue of Philip IV., upon another, a little temple of ſolid ſilver, orna-

* The engraving of this piece, publiſhed in 1782 by *Selma*, one of the moſt able artiſts in Spain, gives but a faint idea of the noble appearance and harmony of the characters in this magnificent painting.

mented with lapis lazzuli and precious ſtones. Round theſe are ranged all the anceſtors of Ann of Neubourg, wife of Charles II.

In the intervals between the ſhelves are portraits of Charles V., and of the three Philips his ſucceſſors to the throne of Spain. Ye philoſophers, who, after having read what I have written, ſhall viſit this library, ſtop before the portrait of Philip II, painted with great exactneſs by Pantoja de la Cruz; contemplate his grave and auſtere phyſiognomy, and you will read an abridgement of the hiſtory of his reign; but communicate not the reſult of your reflections to the monks who accompany you, this would be a bad return for the obliging reception you will meet with. Should you bring prejudices with you to the Eſcurial againſt the Spaniards in general, or, what would be more excuſable, againſt the monks in particular, you will certainly lay them aſide, after having paſſed a quarter of an hour with the Jeronymites of this monaſtery; you will be convinced that, even under the religious habit, the Spaniard frequently conceals much complaiſance and real goodneſs of heart. For the truth of what I here ſay, I may appeal to two learned Danes, who arrived at the Eſcurial in 1783 to ſatisfy their learned curioſity, and who were perfectly well received by the monks, notwithſtanding the difference of their manners, language, and religion *. They were lodged in the convent, and provided with every thing they could wiſh with the moſt generous hoſpitality. All the treaſures of the library were opened to them, and they paſſed two months in examining and making extracts from ſuch manuſcripts as excited their curioſity.

The obliging generoſity they experienced on this occaſion was the more remarkable, as the manuſcripts entruſted to their inſpection were then unknown to the public, except by a few extracts given of them by a Spaniard, named Caſſiri, in two volumes in folio, which are far from completing the extenſive plan the monk propoſed to himſelf. After his death, they were conſigned to another of the fathers of the Eſcurial.

The manuſcripts are not kept in the great library, which is open to all comers every morning and evening during the ſtay of the court, but in a large hall above, always ſhut up; and to which all the books proſcribed by the Spaniſh orthodoxy are ſent. The portraits of ſuch natives of Spain as have diſtinguiſhed themſelves in the ſciences, arts, or in literature are hung round the hall, and the number of the learned in Spain is more conſiderable than out of that country is generally conceived.

In the library of the Eſcurial the books are placed the contrary way, ſo that the edges of the leaves are outwards and contain their titles written on them. I aſked the reaſon for this cuſtom; and was told that Arius Montanus, a learned Spaniard of the ſixteenth century, whoſe library had ſerved as a foundation for that of the Eſcurial, had all his books placed and inſcribed in that manner; which no doubt appeared to him to be the moſt commodious method of arranging them; that he had introduced his own method into the Eſcurial; and, ſince his time, and for the ſake of uniformity, it had been followed with reſpect to the books afterwards added. This explanation proves nothing but the oddity of one man, and an attachment, common to moſt men, to eſtabliſhed cuſtoms, eſpecially when in themſelves they are almoſt indifferent.

In a ſmall room adjoining the great upper cloiſter one is delighted with an annunciation, by Paul Veroneſe; a nativity, by Tintoret; a deſcent from the croſs, and a St. Margaret, frightened by the apparition of a dragon, by Titian; but more eſpecially one by the ſame maſter, which is called *the glory of Titian*, either on account of its excellence,

* Mr. Moldenhauer, at preſent Chief Librarian at the Royal Library of Copenhagen, and Mr. Tychſen, Profeſſor of the Univerſity of Gottingen. Both have enriched German literature with the fruits of their labour in the Eſcurial.

or

or becauſe it repreſents Charles V. and Philip II. admitted to celeſtial glory, in preſence of the principal patriarchs of the ancient law.

A ſmall cabinet adjoining to this hall contains ſeveral relics, one of the miraculous urns at the marriage of Cana, an old manuſcript of the life of St. Thereſa, written by herſelf, &c.

Shall I yet ſpeak of ſeveral chef d'œuvres which are ſeen on deſcending from the King's apartment to the church? of a deſcent from the croſs, by Spagnoletto; and a large picture repreſenting Lot and his daughters, one of the moſt ſtriking in the Eſcurial, by the Chevalier Maxime; of another much ſmaller, by Reubens, in which ſeveral martyrs are grouped in ſuppliant attitudes round the throne of the Virgin.

This laſt piece is placed near the ſmall ſaloon, and faces the door of the apartment, according to the tradition of the monaſtery, in which the unfortunate Don Carlos loſt his life; not by order of Philip II., but by ſtarving himſelf to death through deſpair; a circumſtance, it is ſaid, much more attributable to the violence of his untractable character than the ſeverity of his father. It is not, however, in the Eſcurial that the true account of a tranſaction, which ſtamps with horror the memory of its *holy founder*, can reaſonably be expected to be met with.

I ſhould never finiſh, were I to deſcribe all the curious paintings in the Eſcurial. Thoſe who wiſh for a more complete nomenclature of the curioſities of the monaſtery, called by ſome the eighth wonder of the world, may conſult the deſcription, in folio, given of it by Father Ximenez, one of its monks, and the work of the Abbé Pons, a lover of the fine arts who died lately, and who, in the ſeventeen volumes of his *Travels in Spain*, has conſecrated one entirely to a deſcription of the Eſcurial. What I have ſaid is ſufficient to inform my readers, that it is to its rich collection of pictures the Eſcurial owes its reputation; and that if it were deſpoiled of this part of its riches; if the court ſhould not come to reſide there every year, with its train, the Eſcurial would be nothing more than a great convent, much more ſtriking from its maſs and ſolidity, than the magnificence of its decorations.

It has a narrow terrace on each ſide, whence the eye commands, towards the eaſt, a very extenſive but little varied proſpect. The Abbé de Vayrac and Colmenar particularly ſpeak of its extenſive park. For my part, I ſaw nothing in the environs but thinly planted woods full of rocky eminences, interſected with meadows, which are ſeldom green, and ſtocked with innumerable herds of deer, but no incloſure, no park, according to our acceptation of the word; in ſhort, nothing preſenting that appearance of grandeur and magnificence, which we naturally expect ſhould accompany a royal manſion.

From the terrace you deſcend by ſteps cut in the ſide to a garden neither large nor handſome; not even carefully cultivated. At the end of the terrace, to the weſt, is an out-houſe adjoining to the grand edifice, but of a more elegant architecture. It communicates behind with a new building, parallel to the principal front of the convent, and which compriſes the ſleeping rooms of the Caſa de los Infantes.

This building, placed immediately at the foot of the mountains, and fronting the winds which force their way through the narrow paſſes, contributes to check their violence. It, however, does not prevent their effects from being very perceptible, eſpecially during the ſeaſon which the court paſſes at the Eſcurial. They are the more troubleſome from their paſſing along the front to the north, and impetuouſly ſweeping the oblong ſpace which ſeparates it from the apartments allotted to the miniſters, and ſome of the clerks in office, and which you are obliged to croſs to go from the convent to the village. If the exaggerated accounts given to ſtrangers are to be believed, theſe

furious winds not only ſtop thoſe who are walking towards them, make them ſtagger, and ſometimes throw them down, but they blow with ſuch violence againſt the carriages ſtationed before the palace, as ſometimes to remove them from their places. I, however, have never met with any of theſe wonderful exhibitions in my different viſits to this place, although on this walk called *Lanja*, leading from the convent to the village, there are frequent whirlwinds; to do away the inconvenience of which to foot paſſengers, a few years ago a ſubterraneous and vaulted gallery of hewn ſtone was conſtructed, called *La Mina*, which runs under the whole ceiling; ſheltered by this impenetrable roof, one may brave the fury of the elements in all weathers, and diſregard the winds which roar above one's head. The idea is ſaid to have been given by M. de Maſſones, a grandee of Spain, who died ſoon after the gallery was finiſhed, and whom we have ſeen ambaſſador in France, after having attended the congreſs of Aix la Chapelle, which brought him into notice. This is a mode of obtaining celebrity at eaſy expence.

The ſituation of the Eſcurial renders the walks in the environs painful; you may wander with pleaſure, however, in a valley between the front to the ſouth and a mountain, which oppoſes to it its high and woody top. The inequality of the ground produces freſh proſpects at every ſtep, and favours the rapid fall of ſeveral rivulets which meander through the copſes.

A pleaſing melancholy creeps over one liſtening to the diſtant murmurs of theſe rills, which are heightened by the ruſtling of the trees, often rudely treated by the north wind; to theſe are added the hollow bellings of the deer, which in rutting time reſtleſsly wander under their ſhades. This valley ſlopes in a gentle deſcent from the *Cazino* of the infant Don Gabriel to that built by the preſent King when prince of Aſturias. Theſe two little houſes are fitted up within with more elegance than could be expected from their modeſt exterior. That eſpecially called *the Prince's*, contains ſome of the richeſt and moſt highly finiſhed ſculpture, gilding, joinery, and lockſmith's work that can be; Charles IV. collected there a great number of paintings, ſome of which with reſpect to their ſize and ſubject, might be better placed elſewhere than in this pleaſing habitation; the heads of the apoſtles, for example, melancholy productions of Spagnoletto, whoſe pencil ſeems to have been excluſively employed on penitentiary ſubjects. This palace in miniature would be far better furniſhed, were no other pieces left than cheerful landſcapes, ſome of the beſt paintings of Madrid of a ſmall ſize, and the two ſea pieces by Vernet, of which Louis XVI. a few years ago made a preſent to the prince of Aſturias, who teſtified a deſire of poſſeſſing at leaſt ſome of the productions of that grand maſter. Theſe are not the only ones; Vernet painted the whole of the pannels of a cabinet, the dimenſions of which were ſent to him by the prince. The inimitable talent of Vernet is conſpicuous in them all, and if poſterity ſhould be ignorant of their being painted in 1782, they will be thought to be the productions of his prime.

The little lodge of the infant Don Gabriel, which his brother Don Antonio now inhabits, is leſs than that of the prince his brother, and not ſo much ornamented. It had three or four of the beſt pieces of Spagnoletto, eſpecially a St. Peter, remarkable for accuracy and expreſſion, though it might be more admired in another place: But none would baniſh from the collection two heads, one by Corregio, the other by Murillo; both of exquiſite grace and ſoftneſs. The infant Don Gabriel, as much as poſſible in a prince, who united the knowledge of a connoiſſeur and the zeal of an *amateur*, not ſatisfied with encouraging the arts, cultivated them himſelf, and hung with drawings by the greateſt maſters one of the cabinets of this lodge.

CHAP. VIII.—*The palace at Madrid.—Buen Retiro.—Picture of the three laſt reigns.—The walk called El Prado.—Botanic garden.—Cabinet of natural hiſtory.—Academy of the fine arts.—The Plaza Major.*

WE will now take leave of the rocks, the mountains, and gloomy beauties of the Eſcurial, and conduct the reader to Madrid by one of the fineſt roads, it is true, but acroſs one of the moſt barren countries in Europe. There is, however, as we deſcend from the hill on which the monaſtery ſtands, a ſmall foreſt of beech, which affords an agreeable proſpect. To the end of the reign of Charles III., innumerable herds of ſtags, which paid but little attention to the noiſe of carriages paſſing, were ſeen feeding among horſes and oxen. Startled by a falſe alarm they were ſeen to file off, bounding before the traveller, whom they appeared to challenge to the courſe. The meaſures adopted by Charles IV. have leſſened their number and increaſed their timidity. In paſſing through the foreſt between the trees ſeveral ponds are diſcovered, whoſe rural banks invite to contemplation; farther on a ſolitary houſe offers an aſylum to loſt wanderers. This is the farm-houſe of the monks of the Eſcurial, whom, in ſpite of their affability, I cannot forgive enjoying ſuch hurtful opulence. According to a calculation, the exactneſs of which cannot be ſuſpected, their annual revenues amount to upwards of ſeven hundred thouſand livres (above 29,000l.).

After having quitted this foreſt we meet with no more trees until we approach the Manzanares. This very ſmall river runs at ſome diſtance from the foot of the heights upon which Madrid is ſituated. It is almoſt always ſhallow enough to allow carriages to ford over. There are, however, two great bridges over it, that of Segovia, and that of Toledo. The former, built by Philip II., is ſo diſproportioned to the breadth of the Manzanares, as to have cauſed that remark which attention would convince an obſerver is greatly out of place—*that fine bridge only wants a river.* At the bottom it merits neither the praiſe nor the point of the epigram. The apparently diſproportionate dimenſions of many bridges beſide this in Spain have a very reaſonable origin. Spain is interſected in almoſt every direction by long chains of mountains, whoſe ſummits, notwithſtanding the heat of the climate, are frequently covered with ſnow; the rivulets, and the rivers which deſcend from their ſides, have uſually but a ſmall ſtream of water, becauſe droughts are frequent in the provinces through which they run; but when abundant rains, or the melting of the ſnow increaſe their volume, the beds of the rivers are the more extended for their not being deep, and filling with ſand; to anſwer which circumſtance, although it ſeldom occurs, the dimenſions of their bridges are calculated. They are ſolidly conſtructed on account of the ſudden riſings of the rivers, and their apparently diſproportionate length is to obviate the inconvenience which might ariſe from an overflowing. Whole ages and nations muſt not be accuſed of ignorance and ſtupidity, becauſe we cannot at firſt diſcover the reaſon for certain cuſtoms and practices.

Madrid makes a good appearance on entering it from the Eſcurial. After having paſſed the Manzanares, we proceed along a part of a fine road, planted with trees, which leads from the capital to Pardo, a royal manſion about two leagues from Madrid, where the court reſided during the reign of Charles III. for two or three months in the year, but which his ſucceſſor but ſeldom frequents, to ſhoot in the woods about this mournful chateau. The road runs for ſome time along the banks of the Manzanares, and on the oppoſite ſide we ſee an ancient country-reſidence of the Kings of Spain, the *Caſa del Campo*, but which has been neglected by the family of Bourbon.

The

The gate of St. Vincent, by which we enter, is new and tolerably elegant. We afterwards aſcend with much difficulty to the palace, which ſtanding alone upon an eminence, without either terrace, park, or garden, has rather the appearance of a citadel than that of a reſidence of one of the moſt powerful monarchs in the world; but as we approach, it ſtrikes one differently. Its form is almoſt ſquare, and there is a ſpacious court in the middle, around which are large piazzas. The apartments and offices of the principal perſons of the court are upon the ground floor, which they wholly occupy. A fine marble ſtair-caſe leads to the firſt ſtory, the ſides of which are richly decorated. The King's apartments are of the moſt magnificent dimenſions. The hall, in which the throne is placed, (*el ſalon de los reynos*,) may be admired even by thoſe who have ſeen the gallery of Verſailles. The different dreſſes of the Spaniſh monarchy are painted in freſco upon the ceiling by a Venetian named Tiepolo. Fine vaſes, little ſtatues, and antique buſts are diſtributed upon all the tables. Almoſt the whole of the ornaments are of Spaniſh production. The looking-glaſſes, perhaps the largeſt in Europe, were manufactured at St. Ildefonſo, as well as the glaſs of the windows. The tapeſtry was made in a manufactory near the gates of Madrid; and the inexhauſtible and variegated quarries of the peninſula furniſhed marble for the tables and floors.

The apartment adjoining is that in which the King dines. Mengs, who painted the ceiling, the ſubject of which is the aſſembly of the gods and goddeſſes on Olympus, has diſplayed all that rich and brilliant colouring for which he is admired. During the ſummer, the portraits of Philip II., Philip III. and his Queen, Philip IV., and the Duke d'Olivarez, all on horſeback, painted by Velaſquez, and thoſe of Philip V., and the Queen Iſabella Farneſe, his ſecond wife, by Charles Vanloo, are ſubſtituted for the tapeſtry. It is not neceſſary to be a connoiſſeur to be ſtruck with the aſtoniſhing ſuperiority of the firſt of theſe. The fine form of the horſe of Philip IV., its ſpirit, and the firm poſture of his body, are above all praiſe.

This apartment opens into that wherein the King gives audience. The ceiling, which repreſents the apotheoſis of Hercules, is a maſter-piece of Mengs. His laſt painting, on which he was employed at Rome when the fine arts and his friends were deprived of him by death, is placed in the ſame apartment; it is an annunciation. The Virgin has an admirable expreſſion of modeſty and ſweetneſs; but one laments the angel Gabriel ſhould not have a countenance and attitude more ſuitable to his meſſage. There is, moreover, in this apartment a large painting by the ſame maſter, the adoration of the ſhepherds, in which the men, women, and children are finiſhed pieces, equally beautiful and full of expreſſion. His works compoſed the principal decoration of the bed-chamber of Charles III., who was delighted with the productions of this eminent painter. His deſcent from the croſs, however, in the opinion of connoiſſeurs, eclipſes every thing elſe. The eye is never tired with contemplating the deep and tender grief of the beloved diſciple; the ſublime attitude of the Virgin, who in deſpair expects no comfort for her ſorrows but in heaven; and the ſofter, but not more affecting affliction of the Magdalen, who preſerves all her charms in the midſt of the general grief; and laſtly, the body of Chriſt, which a friend of the author, the Chevalier Azara, perfectly qualified to judge of what he ſpeaks, pronounces to be admirable, for the truth, the divine appearance, and beauty of the fleſh, which, unlike other painters, Mengs has not preſented torn and diſcoloured from long ſuffering.

The chamber next to that in which the throne is placed, is entirely filled with admirable paintings of the Italian ſchool. Among more than a dozen capital pictures of Titian, is a Venus blindfolding the eyes of Love; and its companion, the ſubject of which is two females of exquiſite beauty, with a warrior between them erect, a copy of

which is in the Muſeum at Paris; Venus at her toilette; a Siſyphus; a Prometheus; and above the reſt, a painting of Adam and Eve, which has for its companion the copy which Rubens made from it; but which, in the opinion of Mengs, ſerved only to make more conſpicuous the inimitable excellence of the original. Two pictures by Paul Veroneſe, ſeveral by Baſſan, and a Judith by Tintoret, are ſeen with pleaſure in the ſame chamber; and in the next apartment a few by Luca Giordano, and one by Spagnoletto.

The ſucceeding apartment is in like manner hung with pictures; particularly two admirable pieces by Velaſquez, one of which repreſents the forge of Vulcan, the other a Spaniſh general, to whom the keys of a city are given up.

In the adjoining apartments, among a great number of paintings by the firſt maſters, are an adoration by Rubens, and a carrying of the croſs by Raphael, which alone are worth a collection. In the firſt Rubens has diſplayed all the magic of his pencil, his richneſs of drapery, and all the magnificence of compoſition. It is impoſſible not to be ſtruck by the noble air and grandeur of one of the kings. His carriage, attitude, and retinue ſeem to announce him commiſſioned by the univerſe to congratulate its divine author upon an event of ſuch importance to all mankind; but the painting of Raphael inſpires ſentiments more affecting, though not leſs ſublime. The Saviour of the world ſinking beneath the weight of his croſs rather than that of his grief, and preſerving in the midſt of his perſecutors, who force him along and ill-treat him, a reſignation and ſerenity which would diſarm cruelty itſelf; appearing leſs concerned for his own ſufferings, than earneſt in endeavouring to conſole his afflicted mother, who ſtrives to ſoften his perſecutors, and the ſupplicating women who are overcome with grief for his fate. The impreſſion which reſults from theſe two great compoſitions, renders the mind almoſt inſenſible to the beauties of the other paintings of Titian, Vandyck, Raphael himſelf, and even of little maſter-pieces of Corregio.

There are paintings of a different kind in the late apartments of the Infanta *, Maria Joſephine, ſiſter to the King; this is the profane ſide of the palace of Madrid. In the firſt chamber is one by Giordano, in imitation of Rubens, it repreſents the painter himſelf working at the portrait of a princeſs: there are alſo ſeveral voluptuous paintings by this maſter of the Flemiſh ſchool; a combat of gladiators, in which the vigour of Lanfranc's pencil is eaſily diſcovered; and a capital piece by Pouſſin, the ſubject of which forms a ſingular contraſt to the devotional paintings of which we have already ſpoken. This is a dance formed by a troop of nymphs about the ſtatue of the god of gardens; the variety of their expreſſive and graceful attitudes, their eaſy ſhape, and the beauty of their form, all breathe the pleaſures of youth and love; ſome crown with garlands the ſtatue of the laſcivious god, others—But we will draw a veil over this part of the painting, which the modeſty of the painter has purpoſely placed in the ſhade.

The adjoining apartments are filled with paintings of leſs merit, if we except a grand compoſition by Paul Veroneſe, and a piece by Lanfranc.

The dining-room of the infanta is highly embelliſhed by the indefatigable pencil of Luca Giordano, whoſe fertile imagination aſtoniſhes at firſt, but ends with fatiguing. In a cabinet adjoining to the dining room are alſo ſome pieces by Rubens, and one of the beſt portraits of Titian; that of Charles V., of natural ſize to the knees. An engraving was lately made from it by a young man of Madrid, named Selma, who promiſes to become an excellent artiſt.

I could yet mention many other paintings contained in the apartments lately occupied by the two Infants, brothers to the King, particularly ſome by Rubens, in which his

* This Infanta died in 1801; the ſimplicity of her manners and her benevolence have made her univerſally regretted.

freſhneſs

freſhneſs of colour, and his livelineſs of fancy ſhine in their higheſt ſplendour; but I deſiſt, leſt I ſhould fatigue my readers by a barren catalogue: I have already ſaid enough to ſatisfy them that the collection of the King of Spain is one of the moſt valuable in Europe. It is true there are but few paintings of the French ſchool, but the beſt productions of thoſe of Italy, Flanders, and Spain are found in abundance; thoſe of the latter eſpecially, leſs known than they deſerve to be, are worthy of all the attention of connoiſſeurs; the names of *Navarette*, *Alenzo*, *Cano*, *Lurbaran*, *Zerezo*, *Cabezalero*, *Blas de Prado*, *Joanes*, &c., who among their countrymen enjoy a well earned reputation on many accounts, are ſcarcely known out of Spain. It is even only by hearſay that names much better known enjoy any reputation in France; ſuch as Rivera, called there Eſpagnolet, who although a Spaniard born, belongs rather to Italy than Spain; *Velaſquez*, remarkable for his correctneſs of deſign and perſpective; and *Murillo*, one of the firſt painters in the world for the freſhneſs and vivid colouring of his fleſh, and his ſoftneſs of expreſſion; Murillo *, whoſe productions for a long time ſought after in France, at length occupy a place in the muſeum.

The chapel of the palace contains nothing remarkable of this kind, but its architectural proportions are exact and beautiful.

The palace of Madrid is entirely new. That which Philip V. inhabited having been burned, the monarch wiſhed to have it rebuilt upon the ſame foundation. An architect from Piedmont laid before him a moſt magnificent plan, the model of which is preſerved in a neighbouring building. Philip V. was deterred by the expence from carrying the plan into execution, and adopted one more ſimple, which, notwithſtanding it already coſts as much as that of the Italian architect would have done, is not yet finiſhed. Two wings have been building to it for theſe twelve years paſt, which will give to the whole a leſs heavy appearance, but muſt hide the principal front.

One approaches towards this front through a large irregular ſquare, at the extremity of which is the armoria or arſenal, which contains a curious collection of ancient and foreign arms, arranged with great order and carefully preſerved. The moſt remarkable things here are neither cimeters ſet with diamonds, nor complete ſets of armour of different Kings of Spain, not even that of St. Ferdinand; but thoſe of the ancient American warriors. A long enumeration of all theſe curioſities is carefully made to the traveller, when he is admitted into the arſenal, and although he were a Frenchman, the ſword worn by Francis I. at the battle at Pavia would not be forgotten. The Kings of the Auſtrian dynaſty only inhabited the palace occaſionally, which looked on the Manzanares, and which ſtood on the ſite of the new palace. They reſided during a part of the year at a ſort of country-houſe, ſituated on an eminence at the oppoſite extremity of the town, called by them *Buen Retiro*. Philip V. was highly partial to it, and made it his ſole reſidence while at Madrid after the deſtruction of the ancient palace by fire. Ferdinand VI. had no other, and Charles III. paſſed the firſt years of his reign in it, greatly againſt the inclination of his Queen Amelia of Saxony, who was continually drawing vexatious compariſons between the magnificent horizon about Naples, which ſhe had juſt left, and the naked and confined proſpect of this reſidence. No royal abode had ever leſs the appearance of a palace than Buen Retiro; it is a deformed collection of ſymmetrical parts entirely devoid of any thing ſtriking. It nevertheleſs contains a long ſuite of rooms, which might at a trifling expence be made inhabitable. The gardens, which they front, are without water, much neglected, and are now uſed as a public walk. There are a few ſtatues worthy of the attention of the curious; that of Charles V. trampling upon

* In France, where almoſt all foreign names are diſfigured, he is called Morillos.

a monſter,

a monſter, which is ſuppoſed to be the emblem of hereſy; and an equeſtrian ſtatue of Philip IV. by an able ſculptor of Florence. The palace of Retiro contained alſo many valuable pictures; but the greateſt part of them have been removed to the new palace. The ſumptuous apartment called the *Caſon* is remarkable for its ceiling, painted by Giordano. It is an allegorical repreſentation of the inſtitution of the order of the golden-fleece.

I ſhall mention only two other paintings in this palace. One of Philip V. in years, ſeated by the ſide of his wife Iſabella of Farneſe, and ſurrounded by all his family. Charles Vanloo has perhaps diſplayed too much magnificence in the decoration of the hall; the figures he has painted have in conſequence a paleneſs from the ſurplus of brilliancy in the furniture; nevertheleſs one cannot behold without intereſt an aſſemblage of ſo many perſons who have filled eminent parts on the theatre of the world.

The other picture is leſs remarkable from the merit of its compoſition than from the ſcene it preſents. This is a faithful repreſentation of the laſt ſolemn *Auto da fé*, which was celebrated in 1680, in the Plaza Mayor of Madrid, in preſence of the whole court of Charles II. The balconies appear full of ſpectators, excited equally by devotion and curioſity. The fatal tribunal is raiſed in the middle of the ſquare. The judges there wait for their pale and diſfigured victims, who, covered with melancholy emblems of the torments prepared for them, are about to hear their ſentence. Some receive the laſt exhortation of the monks, others ſtagger and faint upon the ſteps of the tribunal. How many reflections naturally ruſh on the mind of the ſpectator;—but let us turn our attention from theſe afflicting objects.

The theatre of Buen Retiro is ſtill in good preſervation: the houſe is ſmall but well contrived. The ſtage, which is ſpacious, opens at the bottom into the gardens of the palace, with which it is on a level; this is favourable to theatrical magic, when it is required to extend the perſpective and permit the diſplay of bodies of troops or a train of cavalry. All theſe illuſions are vaniſhed; the theatre is deſerted, its decorations are covered with duſt; and this theatre which in the reign of Ferdinand VI. reſounded with the moſt harmonious voices, is now condemned to mournful ſilence, which has been but twice interrupted for theſe ſeven-and-thirty years.

Thus do courts change their appearance according to the taſte of the ſovereign. The brilliant taſte of Ferdinand VI. naturalized in Spain the fairy ſcenes of the Italian theatre under the direction of Farinelli the muſician, whoſe talents acquired him a diſtinguiſhed favour, at which no perſon murmured, becauſe he modeſtly enjoyed without abuſing his good fortune. Under Charles III. Euterpe and Terpſichore loſt their influence: this monarch, more ſimple in his manners, more uniform in his taſte, and inſenſible to profane pleaſures, baniſhed them from his reſidence, and confined himſelf to the protection of the ſilent arts, the ſciences, and virtue. A ſtranger to the tender paſſion; and although benignant, yet almoſt entirely inſenſible to friendſhip, during his whole reign of thirty years continuance, if the Marquis Squillaci be excepted, who was near being fatal to him, and an Italian valet de chambre (Pini), who yet never enjoyed but an obſcure and ſubaltern degree of eſteem, he had not one favourite; and protected from the ſeduction of the ſenſes by his religious diſpoſition, he paſſed twenty-nine years of his life (rare example among Sovereigns!) without either wife or miſtreſs. In order to be admitted to the preſence, the libertine was obliged to follow his pleaſures in ſecreſy; ſo that never was there a court where leſs gallantry was diſplayed than at that of Charles III.

At that of Charles IV., leſs auſtere than his father, although pleaſure be not expelled, it is yet entertained without parade; and if favour prevail, it is excuſable, ſince it is nobly diſpenſed, exerciſed with benignity, and makes as few enemies as poſſible. This

court has a ſuperiority over that of the preceding, by its confiding its principal truſts to the hands of Spaniards; even the Queen, although an Italian, has identified herſelf with the nation for a long time paſt; whereas in the three latter reigns ſtrangers for the greater part filled all the offices of truſt. This circumſtance is of itſelf ſufficient to hinder the exploſion which other matters are calculated to promote. Finally, to complete the parallel of the four reigns of the Houſe of Bourbon in Spain, (for I ſhall ſay nothing of that of Louis I., which did not laſt a year,) we ſhall obſerve, that they preſent the rare diſplay of an uninterrupted ſucceſſion of four kings, if not great, or illuſtrious for brilliant qualities, yet virtuous, humane, and ſincerely pious; who may poſſibly have erred in their intentions of doing good, yet who never did intentionally wrong.

In the gardens of Buen Retiro the monarch has eſtabliſhed a China manufactory, which ſtrangers have not hitherto been permitted to examine. It is undoubtedly intended that experiments ſhall be ſecretly made, and the manufacture brought to ſome perfection, before it be expoſed to the eyes of the curious. Its productions are to be ſeen no where except in the palace of the ſovereign, or in ſome Italian courts, to which they have been ſent as preſents. Charles III. rendered their due homage to our manufactures when he excepted the court of Verſailles from his diſtribution, notwithſtanding the latter regularly forwarded ſome of the fineſt works of our Seve manufactory to the Princeſs of the Aſturias. Louis XV. eſtabliſhed this cuſtom, on account of his grand-daughter, and his ſucceſſor did not diſcontinue the practice.

Certain kinds of inlaid work which are not yet much known in Europe are wrought in the ſame edifice. Generally ſpeaking, the Retiro, its apartments, and its gardens, are nearly abandoned by the court; in recompence, however, Charles III. has richly embelliſhed the environs.

This ancient palace commands a public walk, which has long been famous in Spaniſh comedy and romance, *El Prado*. Its contiguity to the palace, its ſhades, the unevenneſs of the ground, every thing was favourable to intrigue, but every thing as well increaſed the danger; Charles III., by levelling it, by planting it with trees, and lighting its avenues, by providing for its being watered, and adorning it with fountains, ſome of which, that of Cybele, for example, is very handſome, made a ſuperb promenade of it, and ſuch as may be frequented at all times with pleaſure and in ſafety. It forms a part of the interior incloſure of the city, and is in length about the ſpace of half a league. Several of the principal ſtreets terminate here. That of Alcala, the wideſt in Europe, croſſes it, runs by the ſide of the gardens of the Retiro, and terminates at the gate of the ſame name, which, although ſomewhat heavy, is one of the fineſt pieces of architecture in the capital.

The inhabitants from all quarters reſort hither on foot or in carriages to meet and breathe beneath the ſhade of the long alleys, an air freſhened by waters ſpouted from the fountains, and embalmed by exhalations from the fragrant flowers. The concourſe of people is frequently prodigious. I have ſometimes ſeen four or five hundred carriages filing off in the greateſt order, amid an innumerable crowd of people on foot; a ſpectacle which at once is a proof of great opulence and population. But a better taſte were deſirable in the carriages, and a greater variety for the eye. Inſtead of that motley appearance of dreſſes, which in other public places of Europe afford a change, without which there would be no pleaſure, there is nothing ſeen in the Prado on foot but women uniformly dreſſed, covered with great black or white veils, which conceal a part of their features; and men enveloped in their large mantles, for the moſt part of a dark colour; ſo that with all its beauty, at the beſt it is but a theatre of Caſtilian gravity; this is the more apparent, where every evening at the firſt ſtroke of the *angelus* all thoſe

who are on the walk, ſuddenly ſtop as if ſtruck with palſy, pull off their hats, leave off in midſt of the moſt intereſting and tender converſation, and call home their thoughts a few minutes for devout contemplation. Woe to the wretch who ſhould dare to diſturb this ſilence of devotion, which the impious may ridicule, but which nevertheleſs poſſeſſes ſomewhat affecting, ſomewhat impoſing event of the philoſophical obſerver. The prayers of the *angelus* ended, the promenade is continued, and diſcourſe is reſumed. A whole unanimous people concludes, beneath the vault of heaven, its homage to the Creator. Of what conſequence that it be through the intervention of the Virgin Mary, it is not therefore leſs pure, nor yields the mind a leſs ſweet conſolation.

The botanical garden adds not a little to the embelliſhment of the Prado; it was formerly upon the road which leads from Madrid to the caſtle of Pardo; but Charles III. a few years before his death removed it to the ſide of the Prado with a low incloſure, by which it is ornamented without being concealed; it is daily increaſing in beauty. The botaniſt attached to the ſcience, who readily obtains allowance to view the garden, may entertain himſelf here delightfully for hours in the midſt of trees and plants from all the four quarters of the world. The productions of the vegetable kingdom are ranged in ſquares according to the ſyſtem of Linnæus, and the names of the plants are inſcribed on tickets encloſed in little tubes of tin ſtuck in the ground at the foot of each plant; a very commodious and uſeful means of reference to the beginner. The monarch of Spain it will be eaſily conceived muſt have within his power the means of collecting, particularly from the vegetable reign, the moſt precious collection; in whoſe vaſt ſtates gave riſe to this line of Piron,

"The orb of day ſhines evermore on Spain."

In ſo great a diverſity of climates and ſoil, this immenſe monarchy muſt produce every tree, ſhrub, and plant which grows on the boſom of the earth. It is only within five-and-twenty years that the advantage which theſe poſſeſſions hold out has been put to profit. Gálvez, upon his acceſſion to the adminiſtration of the Indies, ordered all the officers in the civil employment in the colonies, the military, and the clergy to tranſport to Spain whatſoever belonging to the three kingdoms ſhould be deemed worthy of attention. Not a year paſſes without producing the metropolis either ſome new plants from Spaniſh America or ſeed bulbs or ſlips which are reared in the botanic garden of Madrid. The young botaniſts employed by the court in Mexico, Peru, and other parts, accompany their exports with a deſcription of the plants, which they make upon the ſpot of their growth; the ſoil that ſuits them, the kind of expoſure which is moſt favourable to them, and the care which they require. Following theſe inſtructions the botanical profeſſors and above all Don Caſimir Ortega entruſt the diminutive ſeed to its nurſe; and ſurrounded by their young care contemplate with delicious anxiety the different ſtages of their growth as they trace the features by which they have been deſcribed. More than once have I attended their ſitting's as inſtructive as they are amuſing, in which nature is ſeen to prove here ſubjection to regular laws, and her diſpoſition to make common to all mankind the advantages and pleaſures with which ſhe has overſpread the earth, at intervals which ſtagger the imagination. Oftentimes at theſe meetings queſtions occur which are difficult of ſolution. Many a foreign plant demonſtrates the inſufficiency of the claſſes invented by our learned men in Europe, and ſometimes it is impoſſible to give a plant its place without aſſigning it an arbitrary one.

What has been attempted with ſucceſs in plants, I have frequently pleaſed myſelf with the fancy of having extended to the three kingdoms at one ſcope, by allotting all the

ſpace which the botanical garden leaves vacant by the ſide of the walk to a deſtination certainly extraordinary in Europe, and which the monarch of Spain only could be capable of carrying into effect. I would have it divided into as many parts as this ſovereign has principal colonies under his dominion; in theſe ſhould be ſettled a family of Peruvians, another of Mexicans, another from Calefornia, another from Paraguay, from Cuba, from the Canaries, the Philippines, &c. All of them ſhould preſerve their peculiar dreſs and manner of living, each ſhould have built a ſimple habitation upon the model of that they had quitted; and cultivate the trees and plants brought from their own country; ſo that ſurrounded by theſe pleaſing illuſions with greater reaſon than the young Polanore of Bourganville they might ſtill ſuppoſe themſelves in their native ſoil. With what delight would the curious of Europe flock in crowds to behold this living cabinet of natural hiſtory; this cabinet unique in itſelf, in which the objects of his attention would themſelves be the *Cicerone* of the traveller. Here the Mexican would be ſeen beneath the ſhade of his fig-tree, ſhaking it and gathering the precious inſects which colour our European garments; there the inhabitants of Guatimala would cultivate his indigo; and he of Paraguay the herb which conſtitutes his principal riches; the Peruvian, accompanied by the docile animal which partakes of his labours, feeds and clothes him, would in concert with the Luconian endeavour to introduce the ſame cultivation they had been accuſtomed to at home. Thus the exulting inhabitant of the metropolis, without going from the capital, might paſs in review, as if delineated on a map, all the colonies to which his ſovereign gives laws. The imported coloniſt would become accuſtomed to an exile, which every thing would concur to render agreeable; and his fellow citizens, ſeparated from him by immenſe ſeas, informed by him of the benevolence and magnificence of their common monarch, would form a higher idea of his power, pride themſelves upon being his ſubjects, become more attached to his government, and accuſtom themſelves to ſee in the Spaniards of the old world, their countrymen inſtead of their oppreſſors; gently and pacifically effecting a revolution which might prevent or at leaſt retard the misfortune and danger of a ſudden ſeparation.

Such a project may be conſidered as romantic, yet the King of Spain has entered upon one of the ſame kind, which proves his zeal for the advancement of the arts and ſciences. In the ſtreet of Alcala is a large building in which the king has eſtabliſhed a cabinet of natural hiſtory, and which already contains one of the completeſt collections in Europe in metals, minerals, marble, precious ſtones, corals, madrepores, and marine plants. The claſſes of fiſhes, or birds, and eſpecially of quadrupeds, are yet very incomplete; but the meaſures taken by government will in a little time make them as complete as poſſible.

The miniſter in 1782 received an ample contribution from Peru: this was half the rich collection made during an eight years' reſidence in that country by Mr. Dombey, an able naturaliſt, whom the court of France, with the conſent of that of Spain, had ſent thither, and who brought back with him the fruits of his labor to Cadiz. On his arrival at this port he did not meet with that generous demeanour which is the boaſt of Spain. Malevolence, jealous of his miſſion, excited a perſecution againſt him which injured his health, already impaired, and ſeemed for a ſhort time to have even influenced his reaſon. He was as it were a priſoner at Cadiz till he gave up to the commiſſaries of government the moiety of his collection, which he had conceived was excluſively intended for his country. Fortunately theſe commiſſaries had leſs intelligence than ill will, and in the diviſion which they made in the preſence of Dombey, the lot which they fixed upon was not the moſt valuable of the two. He haſtened, ſhortly after his departure,

ture, from a country which had treated him ſo inhoſpitably, and carried with him to France what he had been able to ſave from the rapacity of this invidious people. He confided to one of our firſt naturaliſts, his friend Mr. L'Horitior, the care of claſſing the rich remains of the collection, and making them known to the public. The health of Dombey never recovered from the ſhock it received, either in Peru, or at Cadiz; he died ſome years ago in the flower of youth, exciting the regret of all the learned, and the tears of friendſhip *. He left ſeveral Spaniſh naturaliſts at Peru, whoſe learned reſearches will greatly contribute to enrich the cabinet of natural hiſtory at Madrid.

The ſame edifice that contains this cabinet, and which with the cuſtom-houſe, built alſo by Charles III., conſtitutes the principal ornament of the ſtreet of Alcala, is the place of meeting for the academy of the fine arts (*las nobles artes*); a circumſtance which produced the inſcription on the building, a motto equally happy and juſt:

Carolus III. naturam et artem ſub uno tecto in publicam utilitatem conſociavit, anno MDCCLXXIV.

The honour of inſtituting this academy is, however, due to Philip V.; but Ferdinand VI. being particularly devoted to it gave it the name of his patron *San Fernando*; and Charles III. by providing a comfortable reſidence has made it much indebted to him. The Miniſter for foreign affairs is preſident, and every three years diſtributes premiums to the young ſtudents who have produced the beſt pieces in ſculpture or painting, and the beſt deſigns in architecture. But though there are ſeveral members who have diſtinguiſhed themſelves in theſe three arts, it muſt be confeſſed that their works of real excellence are yet but very few in number, and that the prizes given are rather to be looked upon as encouragements than merited rewards. The Spaniſh court, however, maintains at Rome ſome young ſtudents, who give the moſt flattering hopes; and ſome of the members of the academy are employed by it on engravings of a part of the numerous maſterpieces which embelliſh the different palaces.

It is not only by forming artiſts that the academy contributes to the progreſs of the arts in Spain, it is alſo the ſupreme tribunal, to whoſe deciſion the plans of all the ſacred and profane edifices erected in the kingdom are to be ſubmitted; an inſtitution which, in the end, muſt eſtabliſh a good taſte upon the ruins of that barbarity which is but too viſible in moſt of the edifices of former times, and of which traces ſtill remain in ſome of the gates, in the ancient fountains, and in moſt of the churches in the capital; deformed efforts of art, then in its infancy, which has taken more pains to bring forth monſtrous productions, than would be neceſſary at preſent to produce works of tranſcendent merit. Modern edifices already prove the revolution that has taken place under the houſe of Bourbon. Beſides the new palace of Madrid, we may inſtance the gates of Alcala and St. Vicente, the cuſtom-houſe, and the poſt-office: and particularly a ſuperb building by the ſide of the Prado beyond the gardens of Buen Retiro began leſs than ten years ago. It is deſigned for a muſæum to which the cabinet of natural hiſtory is to be tranſported, and there ſeveral academies are to hold their ſittings. The war interrupted the progreſs of the work for a time but on the return of peace it was reſumed. This fine monument of architecture will be the moſt ſuperb of any

* The two Spaniſh botaniſts who accompanied Dombey, Don Hypolito Chens, and Don Joſeph Pavon, publiſhed a work in 179. under the title of *Floræ Peruvienſis et Chilenſis Prodromus*, in which they give an account of the ſtate of botany in Spain. Four years after their *Syſtema vegetabilium Floræ Peruvianæ et Chilenſis* appeared, and in 1799 their large work in two volumes folio *Flora Peruvianæ et Chilenſis* which has excited the curioſity of the learned throughout Europe.

in

in the capital, and will add no ſmall portion of fame to the reputation of the architect, Villanueva.

At Madrid, however, there are few handſome buildings, it is in general well laid out: the ſtreets, although not in a direct line, are for the moſt part wide, and tolerably ſtraight, it is three leagues and a half in circumference and about three quarters of a league broad at its wideſt part. The infrequency of rain, and the vigilance of the modern police, make it one of the cleaneſt cities in Europe. But except the Prado and its avenues, the city has no elegance to boaſt. The famous *Plaza Mayor*, which the Spaniards take ſo much pleaſure in extolling, has nothing in it which juſtifies their partiality; it is quadrangular, but at the ſame time irregular, ſurrounded by buildings of five and ſix ſtories, ſufficiently uniform, but without ornament, under which are long arcades. It is illuminated on public occaſions, and then it really has an agreeable appearance. The *auto da fés* were formerly celebrated in this ſquare, with all their terrible apparatus. It is ſtill the theatre of thoſe bull-fights which are called at the royal feaſts ſilſtar reales. The hôtel de ville, or town-houſe, is in this ſquare, in which the hiſtorical academies holds its aſſemblies, and in which is its library, its muſæum, its manuſcripts, and its medals. Here alſo is the market for eatables and merchandize of every deſcription. This concurrence of circumſtances has made it the moſt remarkable public place in the capital, and has given it a reputation which, at the time it was firſt built, was perhaps deſerved, but which muſt have vaniſhed ſince architecture has improved in Europe, and produced forty ſquares preferable to the Plaza Mayor.

It was much disfigured by the fire which reduced to aſhes ſeven years ago almoſt the whole of one of its ſides. What tends to take off from its appearance, is a number of ſtalls which prevent one from croſſing in every direction. It is nevertheleſs that quarter which gives the moſt favourable idea of the population of Madrid; and if we judge of it by the concourſe of people upon it at all times of the day, and in the adjacent ſtreets as far as, and including La Puerta del Sol, a ſtreet which is the reſort of the newſmongers, one ſhall be led to imagine there muſt be a miſtake in the enumeration of its inhabitants, taken at no more than 155,672 of reſidentiaries according to the cenſus of 1787. According to Thomas Lapez, who wrote in 1797, Madrid contains 7100 houſes, 77 churches, 44 convents of friars, 31 of nuns, and 130,980 inhabitants, excluſive of the garriſon, the hoſpital and the foundlings, the addition of which three claſſes of inhabitants will raiſe the population to nearly the amount of the cenſus taken in 1787. Government has publiſhed a new cenſus of Spain made in 1797, and which the official gazette announces as more exact than that of 1787 taken under the direction of Count Florida Blanca, with the principal reſults of which I ſhall preſent the reader *.

CHAP. IX.—*Population of Spain.—Principal Churches of Madrid.—Painters, Engravers.—the Preſs.—Religious Foundations.*

IN 1768 the Spaniſh government made a cenſus of the people, which it had reaſon to look upon as defective; in the firſt place, on account of the want of care in taking it, but principally becauſe it was imagined that it had for object the impoſition of a new

* I am hitherto ignorant of the reſult of the cenſus of 1797. The population of Spain will however hereafter be known as well as that of any other country of Europe. The rectors of pariſhes having been inſtructed to forward to government a monthly liſt of the deaths, births, and marriages within their different pariſhes, beginning with the preſent century.

tax

tax on houſes, which engaged a many to deceive the commiſſioners by falſe declarations; this firſt enumeration, therefore, produced for amount no more than 9,159,999 perſons, whereas that of 1787, made with more rigour on the one part, and given with leſs apprehenſion on the other, gave a total of 10,268,150, the difference is an increaſe of 1,108,151.

The ſeverity of government brought to light ſtill greater deceptions. In 1787 there were found to be fewer than there were in 1768:

Of nuns and friars	11,044
Eccleſiaſtics, and perſons belonging to the clergy	17,213
Perſons attached to different monaſtic inſtitutions, and to the cruſade	6,829
Hidalgos, or noblemen	242,205
Making a total of	277,291 perſons,

who by pretending to titles, or by making falſe declarations, became ranked among the privileged claſs, and were thereby exempt from perſonal charges.

In 1768 the cenſus was taken by dioceſes, in 1787 by the means of the intendants of provinces. The annexed table will make the different reſults appear more clear:

	Reſult of the cenſus of	1768	of 1787
Number of	unmarried males, or widowers	2,809,069	3,162,007
	unmarried females, or widows	2,911,858	3,215,482
	married men and women	3,439,072	3,891,661
	Total	9,159,999	10,269,150
Number of	cities, towns, and villages	16,427	18,716
	pariſhes	18,106	18,972
	beneficed clergy, vicars, &c.	51,048	42,707
	convents for men	2,004	2,019
	—— —— women	1,026	1,048
	monks	55,453	57,515
	nuns	27,665	24,559
	perſons attached to the clergy	25,248	16,376
	ſyndics of religious orders	8,552	4,127
	perſons ſubject to the military tribunal	89,393	77,884
	perſons penſioned by the King	27,577	36,465
	—— dependant on the Cruſade	4,248	1,884
	—— Inquiſition	2,645	2,705
	hidalgos, or noblemen	722,794	480,589

By means of this cenſus, the proportion which the number of the different profeſſions bore to each other was known. They were

145	cities, (*ciudades*,)
4,572	towns, (*villas*,)
12,732	villages,
907,197	huſbandmen,
964,571	journeymen,
	270,989

270,989 tradeſmen and artiſans,
280,092 ſervants,
50,994 ſtudents,
39,750 manufacturers.

The population of the different provinces was at the ſame time aſcertained, and what was only ſuſpected before became apparent; that is, that the reſources which the neighbourhood of the ſea affords, added to the quality of the food, which it produces, where the ſoil is fruitful, are ſufficient in themſelves to counterbalance the evils of a bad adminiſtration; ſince Galicia, the clergy in which poſſeſs more than half the lands, notwithſtanding it be deſtitute of canals and navigable rivers, and poſſeſs ſcarce any roads; notwithſtanding its whole reliance be on its manufactories of linen, its trade, and its fiſhery; yet bleſt with a ſoil capable of receiving every ſpecies of culture, ſituated ſo as to have the ſea on its two ſides, and free from that devaſtating ſcourge the *Meſta*, Galicia is beyond compariſon the beſt populated province in Spain, although it be far from having an equal extent with others. In 1787 it contained 1,345,803 inhabitants, while Catalonia, far more induſtrious, and of nearly double the ſurface, compriſed but 814,412, Arragon but 623,308, and Eſtremadura, one fourth part larger than Galicia, no more than 417,000 perſons.

To return to Madrid; as to its population, it has ordinarily from 6 to 10,000 men in garriſon, is the rendezvous for petitioners from all parts of Spain and the Indies, as well as of a great number of ſtrangers; hence it may not be conſidered an exaggeration to compute its inhabitants at 180,000.

Its ſacred edifices have nothing in them very remarkable, although the Abbé Pons has devoted a volume to the deſcription of them; ſeveral, however, contain highly valuable collections of pictures, which may be ſeen with admiration even after the paintings of the Eſcurial, and the new palace. The ſmall church of St. Paſqual, upon the Prado, within its narrow and dirty walls contains two Titian's, ſeveral paintings by Spagnoletto, one of the beſt of Baſſano, two by Guerchin, &c. The church of St. Iſabella has alſo ſome maſter-pieces of Spagnoletto, particularly the aſſumption of the chief altar, a capital piece which has been engraved; but no church at Madrid has a larger or better collection than that of the barefoot Carmelites, in the ſtreet of Alcala. How frequently have I been to the large veſtry of theſe monks, who are the moſt opulent in Madrid, to *reckon, admire, and envy* treaſures ſo ill appreciated, and ſo badly placed; numerous paintings of Spaniards, ſo little but ſo much deſerving of being known, ſuch as Zurbaran, Zerizo, &c.; others by Spagnoletto, Murillo, Giordano; Charles V. haranguing his army, by Titian; a Lord's ſupper, by Vandyck; many by Rembrandt, particularly a Tobit, ſeated and penſive, in which the only light of the piece proceeds from a dull fire to which he is turned. Excepting on account of their paintings, theſe three churches poſſeſs little claim to notice. Bad taſte reigns throughout them, as is the caſe in almoſt all the religious edifices of Madrid. The church of St. Iſidoro alone, which heretofore belonged to the Jeſuits, has a portal which is handſome, although not exempt from faults. Its interior is not deſtitute of beauty, and, among other paintings rather common; it contains a large one by Menſy, and an adoration by Titian.

There is another church much more modern, which, on account of its maſs, has a venerable appearance, and has ſome valuable paintings: it is that of St. *Saleſas*, or the viſitation, founded by Ferdinand VI. and the Queen Barbara his wife. The aſhes of this royal pair repoſe here, under two pompous mauſoleums. On that of the King, an inſcription in Latin, which appeared to me a model of the lapidary ſtyle; the Spaniards

themſelves have expreſſed their diſapprobation of the whole edifice by theſe words: *Barbara reyna, barbaro guſto; barbara obra;* a play upon words which has effect but, in the Spaniſh language, in which the expreſſion *barbara* is equally applied to the name of the foundreſs, to the bad taſte of the edifice, and to the enormous ſum it coſt in building. It has, however, one laudable appendage, a certain number of young ladies are there educated at the King's expence; it forms a part of the ſeminary for the nobility, a kind of military ſchool which has been for ſome time back under the direction of Don Jorge Juan.

And laſtly the convent of St. Francis has been ſome years building at an immenſe expence, and there were hopes that it would become one of the fineſt productions of architecture in the capital. It is lately finiſhed, and is rather a ſolid than an elegant edifice. The church, in the form of a rotunda, ornamented with pillars, is yet a ſtriking object at firſt ſight: the beſt maſters in Spain were employed on paintings for its altars, for the moſt part the pupils of Mengs; M. Maella and M. Bayeux, otherwiſe called *El Arragones*, for example, who, by their taſte and colouring, in ſome manner recompenſe the Spaniards for the loſs of that great painter. The other co-operators were *Don Antonio Velaſquez, Don Andres de la Calleja, Don Joſeph Caſtillio, Don Gregorio Ferro*, who excels in copying the beſt paintings of the moſt eſteemed artiſts; Don Franciſco de Goye * merits alſo by his talents an honourable mention; he pourtrays in a pleaſing ſtile the manners, cuſtoms, and games of his country; neither muſt *Carnicero* be omitted in the liſt, a copyiſt in miniature, poſſeſſed of much taſte, and who faithfully imitates the maſter-pieces with which the King furniſhes his ſmaller apartments. Nor need the genius of deſign diſdain the names of *Don Ventura Rodriguez, de Villenueva, d'Arnul*, a Frenchman by birth, and *Don Franciſco Sabattini* †, an Italian, director of the King's buildings; all of them eminent as architects.

In the art of engraving, they have ſeveral who excel; Don Salvador Carmona, married to the daughter of Mengs, who has in part inherited the fine pencil of her father, is deſervedly to be placed at their head. Mr. Carmona is advantageouſly known in France by ſeveral prizes gained in the academy of painting. Were we to criticiſe with *acumen*, it might be obſerved, that his talents too little, or at leaſt too late encouraged, have not produced altogether what they at firſt promiſed. Several other engravers, Meſſieurs *Ferro*, *Muntaner*, *Fabregat*, *Balleſter*, and eſpecially M. *Selma*, have, by happy efforts, proved that their art ſtill makes ſome progreſs in Spain.

The academy of the Spaniſh language, which in the year 178c gave an elegant edition of Don Quixote, in four volumes, quarto, enriched it with the embelliſhments of the engraver. But the engravings, for the moſt part not above mediocrity, do not anſwer to the merit of the edition, equally admirable for the quality of the ink, the beauty of the paper, the clearneſs of the character, and deſervedly ranked with the fineſt productions of this kind in any other nation. It is of itſelf ſufficient to give celebrity to the preſs of Ibarra; it is truly a national work, by which the Spaniards have refuted the charge of the arts with them being yet in their infancy. The ink is a compoſition made by Ibarra himſelf, to whom our printers have frequently applied in vain for the ſecret; the characters were cut by a Catalan, the paper was manufactured in Catalonia, the learned preface and the anlyſis of Don Quixote, placed at the beginning of the work, are written by a

* Goye excels alſo in portrait painting, as well as *Aciene* and *Eſtore*. In hiſtorical painting *Don Franciſco Rumis* juſtifies the hopes formed of him by the paintings which five-and-twenty years ago he ſent from Rome to the academy of the fine arts at Madrid.

† He, at the ſame time, was chief of the *Corps de Genie*; he died lately, and has been ſucceeded in this latter appointment by *Don Joſeph de Urrutia*, the general who laſt commanded the army in Catalonia.

member of the academy of the Caſtilian language, *Don Joſeph de Guevara*; the binding even, although inferior to the reſt, ſufficiently demonſtrates that the Spaniards are by no means behindhand in any thing which relates to typography.

This is not the only proof they have given of their ability. Every connoiſſeur is acquainted with, prefers to the editions of Baſkerville and Barbou, and reckons equal to the works of Didot, the Salluſt, which the Infant Don Gabriel has tranſlated into his own language; and ſome other works from the preſſes of Ibarra at Madrid, and from thoſe of Benedict Montfort at Valencia, ſuch as Mariana, Solis, Garcilaſo, the poem on muſic, *El Parnaſſo Eſpagnol*, by Sedano; and, above all, the maſter-piece of Benedict Montfort, that learned work of Bayer, the preceptor of the Infant Don Gabriel; entitled *De Nummis Hebræo-Samaritanis*, 2 volumes, *in folio*.

Latterly the Spaniſh artiſts have been employed in multiplying, by the means of the graver, the portraits of a ſcore of illuſtrious perſons, kings, generals, famous writers, &c. and many grandees of Spain, who have galleries of paintings which were loſt to the world, and to the arts, have had engravings taken from them.

But if the pleaſing arts be cultivated at Madrid, the moſt uſeful of all, that of beneficence, is not neglected. Charitable foundations, worthy models for every nation, are found in that city; among thoſe two brotherhoods whole funds are conſecrated to the relief of miſery; a public pawn ſhop, at which money is lent to the neceſſitous, and which in the period between 1724 and 1794 (72 years,) had advanced 111 millions of rials; a receptacle for orphans, and, above all, three hoſpials which annually receive from nineteen to twenty thouſand patients *. The principal hoſpital near to, but on the outſide of the Atocha gate has been lately rebuilt. It is a large edifice, which by no means diſgraces the walk leading from this gate to the canal of Aranjuez, and which the Spaniards have eſtimated rather too highly in honouring with the name of *Las Delicias*.

CHAP. X.—*Other Academies.—Fate of the new Encyclopedia in Spain.—Apology and literary Title of the Spaniards.*

THE Academy of the Fine Arts is not by many the only one that Madrid contains. It may even be ſaid, if the number of literary inſtitutions were the meaſure of progreſs in ſciences, this capital ought to be conſidered one of the moſt enlightened and learned in Europe. There is an Academy of Phyſic; an economical ſociety of the Friends of their Country, to which is annexed a (*Junta de Signoras*,) a junto of ladies impreſſed with deſire of ſignalizing their affection towards the public good, and ſome other inſignificant juntos, as little worthy of notice for their titles, as for the advantage derived from them, and whoſe exiſtence ſerves only to ſhew, that a patriotic zeal has infuſed itſelf latterly into the minds of people of all claſſes; one of *Spaniſh and general law*; one of *theoretical and practical juriſprudence*; one of the *canons of the church*; one of *civil, canonical, and patriotic law*; the *Latin Academy of Madrid*, &c. &c. But the only ones deſerving of particular mention are, 1. The *Academy of the Spaniſh Language*, founded by Philip V., and which the French Academy has conſtantly looked upon as its ſiſter. On the appearance of the very firſt edition of its Dictionary, it was allowed by the moſt eminent grammarians to be the completeſt work of the kind which ever appeared in any

* The *general hoſpital*, which is for men, in the courſe of the year 1801, admitted 14,254 perſons. The hoſpital *De la Paſſion*, (for women) 5,297; and that of *Sant Juan de Dios*, for both ſexes, 3,271; total 22,809 perſons.

language.

language. The Academy has inſtructed its Librarian, the Abbot Marillo, to condenſe it into a ſingle volume for common uſe.

This Academy is compoſed of twenty-four ordinary members; but the number of ſupernumeraries is not limited; the preſident is a grandee of Spain. The preſent is the Marquis de Santa Cruz, the governor is the Prince of Aſturias. But few examples, however, tend to ſhew that it conſiders itſelf honoured by the admiſſion of nobility. The Spaniards do not require a revolution to teach them that high birth ſhould not be a ſubſtitute for perſonal merit. As well as other nations, Spain has its unqualified perſons, perhaps in greater number, but ſuch are kept in their due ſtations, that is to ſay, are unregarded. 2. *The Academy of Hiſtory* was founded and endowed by Philip V. in 1738, its firſt preſident was *Don Auguſtin Montiano*, a diſtinguiſhed literary character but little known out of Spain; its preſent director is the Count de Campomanes *, who, by the rank he holds in the magiſtracy, as well as by his great erudition and virtues, is one of the moſt diſtinguiſhed nobleman of modern Spain. He was ever one of the moſt attentive members of this academy, even at times when his various occupations left him the leaſt leiſure for application.

The Spaniards have always been greatly partial to the ſtudy of their own hiſtory; it ſcarcely contains a city which does not poſſeſs its individual hiſtory or a chronicle. Of late they have reprinted their beſt hiſtorians, and within theſe twenty years have publiſhed editions of ſeveral authors; among others, for the firſt time, ſeveral works of Sepulveda, particularly that entitled *De rebus geſtis Caroli V.* It has for theſe five-and-twenty years been employed on a taſk equally intereſting and arduous, that of publiſhing all the ancient chronicles relative to the hiſtory of Caſtile. Several of theſe works had never been printed; all are enriched with notes and commentaries, which at once prove the ſound criticiſm and the erudition of their authors, the chief of which are Don Franciſco de Cerda, Don Miquel Florez, Don Eugenio de Laguno, and ſeveral other members of the *Academy of Hiſtory*.

The academy contains one of the moſt valuable collections of which a literary ſociety can boaſt. This is all the diplomas, charters, and other documents given, ſince the earlieſt period of the monarchy, to every city, borough, community, church, chapel, &c. in Spain; the whole collected with the greateſt care, arranged in chronological order, and conſequently adapted to furniſh every branch of the Spaniſh hiſtory with the moſt abundant ſource of authentic materials. It is in this immenſe repertory that the academicians have collected the elements of a work which is recently publiſhed, and which has already run through ſeveral editions, *A Geographical Dictionary of Spain*; it has had ſome conſiderable additions made to it, the laſt volume of which appeared in June 1796. Others, among which are the librarians themſelves, have undertaken to give to the public a catalogue of the Greek manuſcripts in the library of Madrid. One of the moſt learned among them, Don Juan Iriarte, died in 1776, leaving behind him three nephews of diſtinguiſhed abilities; one of them, *Don Thomas*, died a few years ago a great literary character; a ſecond, *Don Domingo*, after ſigning the peace of Baſle, went ambaſſador to France, where he died much regretted, as well by his country as by the friends he had acquired among the French; the eldeſt, *Don Bernardo*, is ſtill living, and divides his time between the arts and his duties in adminiſtration.

* He has for ſome years back reſigned all ſuch ſituations as require application, and, a member of the council of ſtate, peaceably enjoys the eſteem which he has ſo well merited; his country, to which he was an honour, as well on account of his virtues as his talent, was for a long time much indebted to him; ſo that he became juſtly entitled to ſpend in quiet the remainder of a life ſo well employed.

To Father Florez, a monk, Spain is alſo indebted for ſeveral volumes of eccleſiaſtical hiſtory, which in his hands was, in truth, only an irregular compilation, but it has acquired a more pleaſing form under the management of his continuator, Father Riſco.

Several other writers, well acquainted with what relates to their country, are employed in giving a clear hiſtory of it, and inſtructing their fellow-citizens in matters of policy, and the ſcience of government. They have naturalized in their language ſuch French and Engliſh works as the Spaniſh orthodoxy would permit; not only thoſe, for inſtance, which treat of trades and arts, but alſo works of literature and philoſophy. It is twenty years ſince they began the tranſlation of the works of Linnæus, and the natural hiſtory of M. de Buffon. At preſent their literary characters are more than ever given to tranſlations, but ſhew a deficiency of judgment in the choice of their ſubjects. While they ſelect *Clariſſa Harlowe*, they adopt at the ſame time our moſt inſipid romances; they place beſide the *Philoſophical Eſſays of Maupertuis*, the works of *Bernardin de St. Pierre* and *Condillac*, our moſt inſipid books on aſcetics. They have even attempted to make the Spaniards acquainted with the *Philoſophical Hiſtory of the Abbot Reynal*; a work which gave riſe to ſo much indignation in the Spaniſh government, that I have more than once been witneſs to the miniſter for the Indies, Galvez, entering into a paroxyſm of rage at the bare mention of the author; looking upon ſuch as attempted to introduce in a contraband manner the copies of this work into the Spaniſh ſettlements in America as guilty of treaſon. The Duke d'Almodovar *, one of the grandees of Spain who cultivates letters, (few are the number of his rank that do,) has given leſs a tranſlation of it than an extract, in which he has taken pains to omit whatever might be obnoxious to ſuperſtition and deſpotiſm, rectifying at the ſame time a number of errors relative to the Spaniſh colonies into which the abbot had fallen. A ſhort time before, the *Dictionaire Encyclopédique* was undertaken to be tranſlated by ſubſcription; and the world was not a little ſurpriſed to ſee the name of the grand inquiſitor at the head of the liſt of ſubſcribers. Towards the cloſe of my firſt reſidence in Spain, there was a very numerous liſt of ſubſcribers for the *New Encyclopédie*, with the ſubjects claſſed under diſtinct heads; but a Frenchman, writer of the article Spain in the ſection on geography, wantonly vilified a whole nation, which its weight in the balance of Europe, and its intimate connexion with our own, ought to have made reſpected. The Spaniſh government reſented this inſult, and the French court determining to redreſs its complaints, the author, cenſor, and printer were ſeverely reprimanded; and the publication of the New Encyclopédie was ſuſpended in Spain by order of the court. The Spaniſh miniſter, however, though offended, was not deſirous of excluding knowledge, and ſoon afterward revoked the ſuſpenſion, at the ſame time he took meaſures to eraſe the errors and invectives from a work of which he knew the merit, and ſubjected the numbers before they were diſtributed to the ſubſcribers to the examination of the council of Caſtile. The council in conſequence nominated a committee for examining the books as they appeared; a ceremony which greatly retarded the work in the firſt inſtance, and the commiſſaries not having either leiſure, inclination, or the requiſite intelligence for ſuch a taſk, three hundred ſubſcribers long awaited their deciſions in vain. The matter became worſe when the holy office, following the ſuggeſtions of intrigue, even more pertinaciouſly than thoſe of religious zeal, produced new obſtacles to the delivery of the parts; firſt, by forbidding the agent whom Panckoucke had ſent to Madrid receiving any new ſubſcriptions; afterwards, by extracting an engagement from him to deliver

* In the reign of Peter III. he was the repreſentative of Spain at the court of Ruſſia, afterwards went ambaſſador to Portugal, and laſtly to England, where he continued in that capacity up to the period of Spain taking part in the American war; he died lately.

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no further copies; and, laſtly, by ſeizing on all they found in his poſſeſſion. The ruin of this citizen, and a conſequent pecuniary injury of conſiderable magnitude to Panckoucke, were the reſult of theſe violent meaſures. The ſtormy times during the revolution, and the war engendered by them, have prevented the injured parties from obtaining a reparation for their loſſes. Peace now happily reſtored allows the hope of retribution.

Throughout this matter the Spaniſh government has to reproach itſelf on more than one account. Was it neceſſary that it ſhould interfere in a matter entirely of a literary nature, and take offence at the inculpations of ignorance? Is the fame, the honour of a nation at all compromiſed by the inſulated aſſertions of an obſcure individual? By diſplaying authority in ſimilar caſes, calumny, ſo far from being refuted, obtains additional force, or at leaſt additional publicity. Spain ſhould have left to her learned men, to her writers, the taſk of demonſtrating to the world that ſhe was not ſo deſtitute of intelligence, not ſo barren of titles to the eſteem and gratitude of Europe, as Maſſon de Merviliiers had affirmed. Thus it is that a great nation ſhews its vengeance. Such an example has long been held to view by the Engliſh and French. Not only do they themſelves even in the time of peace treat each other with ſeverity, ſtrangers as well are frequent in laviſhing on them the moſt bitter railing and invective. Their governments, however, have never felt diſpoſed to make affairs of ſtate of theſe national animoſities. A noble pride, the conviction to the mind of inherent worth ſhould be ſufficient to make every one impenetrable to ſimilar attacks; and ſurely the Spaniſh temperament is of a nature to be ſafe behind this rampart. It was not requiſite for their court to appoint defenders. The Abbot Cavanilles *, who had been at Paris for ſeveral years, ſpontaneouſly undertook the defence of his country againſt the ſhafts of this imprudent journaliſt; but his countrymen themſelves determined that through exceſs of zeal he had overſhot the mark. He was ſtill more prodigal of praiſe than his antagoniſt had been of reproach. The one allowed nothing, the other laid claim to every merit; ſo that to ſuſtain his aſſertions, he was obliged to cite a long catalogue of learned men and artiſts, the major part of which were unknown even to the Spaniards themſelves.

Another apologiſt has more recently aſcended the ſtage to defend his country, not with leſs warmth, but in a more ſpecious manner, and has ſent me his manuſcript.

In this he takes a view of the different branches of ſcience and literature, and proves that Spaniards are ignorant of none. Above all he particularly vaunts of their military ſkill. The works of the *Marquis de Santa Cruz* †, ſays he, are they not tranſlated into all languages? Do not Frenchmen themſelves quote the treatiſes on artillery of *Louis Collado* and Chriſtopher Lechuga?

The enquiry of Maſſon de Mervilliers, *What does Europe owe to Spain for two centuries paſt, nay for four, for theſe thouſand years?* enrages beyond meaſure my anonymous correſpondent. And thus he anſwers him: "Has he then forgot? No, he never can have known, this ignorant Frenchman! He never can have known how Ferdinand the catholic drove the Saracens from Grenada; that Iſabella patronized the diſcovery of the New World; that Charles V. triumphed at Pavia, while Magellan was penetrating the Straits

* This is the ſame perſon who is favourably known to the world of late by ſome eſtimable works on botany.

† For a ſpecimen of the generalſhip of the Marquis de Santa Cruz, ſee the account of *an expedition to the iſlands of Tercera, under the command of the Commander De Chaſte*, which forms a part of this work. With a thouſand Frenchmen he made head during a whole day againſt thirty thouſand men under the Marquis, and actually diſpoſſeſſed them at laſt of a poſt they contended for, and maintained it the whole of the ſucceeding night.—*Tranſlator.*

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which bear his name, and taking obſervation of the coaſts, the rivers, and parts of South America? that *Cano*, firſt of all, made the tour of the world, and certified its figure and extent? that Cortez, in Mexico; that Pizarro, in Peru, fought, conquered, and ſecured to Europe the valuable productions of both Americas; that the domeſtic animals which ſo proliſicly abound in thoſe regions were carried there by Spaniards; that they introduced there the uſe of iron, and taught all thoſe branches of induſtry of which the preſent coloniſts reap the benefit; that they analyzed the productions of thoſe countries; they eſtabliſhed the culture of ſugar, ſource of ſuch advantage to French and Engliſh commerce; they extended that of cocoa, of indigo, of cochineal, of tobacco, of cotton, and proved the value of bark, of balſams, ſarſaparilla, and a multitude of other ſalutiferous productions of nature?

"In the middle of the ſixteenth century, when ſome triumphed at Lepanto under Don John of Auſtria and Bazara, others penetrated to the Philippines; while theſe coaſted along the ſhores of California, certifying it to be a peninſula, and diſcovered New Mexico, thoſe again were traverſing the vaſt extent of South America.

"They cauſed their religion, their manners, and their language to be adopted by millions of inhabitants, and made them agriculturiſts, artiſans, and ſoldiers, patriotically identifying them with the metropolitan country; while the other nations of Europe taught the Indians what they diſcovered, the baneful uſe of arms and ſtrong liquors, eſtabliſhing no other than a paltry traffic for ſkins; and fitted them by their leſſons, and by their example, to become like themſelves perfidious.

"Compare with the ſtate of theſe Spaniſh colonies, the object of ſo much declamation, the miſerable ſituation of Cayenne; that of Louiſiana alſo, (notwithſtanding the monſtrous conceptions of the French,) at the time of its ceſſion to Spain. And ſhall the Engliſh be quoted as a model for us? Have they, in their uſurpations on the ſhores of Campeachy and Honduras, done aught towards civilizing the inhabitants? Have they at all increaſed their happineſs? No; they have ſcattered them abroad, ſunk in barbarity, and ſhewn them no other example than that of piracy and ſmuggling. And further, although at preſent Surinam has attained a certain degree of proſperity under the management of the Dutch, how ſtands the reſt of Dutch Guiana?

"Nevertheleſs, theſe are the moſt induſtrious, the moſt powerful, the moſt commercial nations of Europe: behold their atchievements for the welfare of the two continents! Theſe Engliſh, theſe French, theſe Dutchmen, had they a greater right than we to the colonies which they ſubjected? and how have they treated them? Where are the Caribs of their Antilles? Have they been more diſintereſted, more humane than Spaniards? Are they not highly fortunate in profiting by the ſucceſſes of the brutal Buccaneers? What cruelties have they not been guilty of in the Eaſt Indies, in order to ſecure to themſelves, not only the trade and induſtry of its inhabitants, but even their perſons, which they have enſlaved? Neither are theſe adventurers, whom a nation diſavows, that are guilty of ſuch horrible acts. No; they are traced by the finger of the moſt able politicians in the moſt enlightened age, and in the country of Milton, of Newton, of Monteſquieu, and of Dalembert."

Thus it is the anonymous writer anſwers the charges of Maſſon Mervelliers, and the numerous declamators who ſpake by his mouth. But what do theſe recriminations ſhew? Go they farther than to demonſtrate, that not any of the modern nations can throw the firſt ſtone, where the charge is the crookedneſs of policy, or the ſhameful abuſe of power? They certainly decide nothing in favour of Spain as to her progreſs in civilization, in ſcience, or in letters. The Abbot Cavanilles enters the liſts to combat the charge of deficiency in theſe. Has he proved victorious?

Two other Spaniards have lately run over the ſame courſe, which they have made by much longer than the matter would ſeem to furniſh ground to. Lampillas has conſecrated ſix volumes to the enumeration of the treaſuries of modern Spaniſh literature; and Don Juan Sempère has publiſhed, in ſix volumes in octavo, a work entitled, *Specimen of a Spaniſh Library of the beſt Writers in the time of Charles III.* Would not one conceive, on hearing the titles of theſe two books, that the Spaniſh nation was vaſtly fertile in great writers; the moſt learned, the moſt enlightened, among all the ſtates of Europe? The truth is, in this inſtance, met with, where in diſcuſſions it is uſually found, between the exaggerated inculpations of the French author, and the vain and pompous aſſertions of his antagoniſts. Doubtleſs there are in Spain more learned men who modeſtly cultivate the ſciences; more men of erudition who are thoroughly acquainted with the hiſtory and juriſprudence of their country; more diſtinguiſhed men of letters, and a greater number of poets, poſſeſſed of energy, and a fertile and brilliant imagination, than is generally imagined; but, according to the Spaniards themſelves, the preſent ſtate of letters and the ſciences are far from what they were in the times of *Mendoza*, *Ambroſe Morales*, *Herrera*, *Saavedra*, *Quevedo*, *Garcilaſo*, *Calderon*, *Lopes de Vega*, *Villegas*, *Cervantes*, *Marina*, *Sepulveda*, *Solis*, &c. The Spaniſh univerſities can no longer boaſt the reputation they formerly poſſeſſed; induſtry and population are much inferior to what they were under Ferdinand the Catholic, and his two ſucceſſors.

The three laſt monarchs have been zealouſly and ſucceſsfully employed in endeavouring to revive thoſe happier times; but frequent wars, the diſorder of the finances, and other more active cauſes, have allowed of but feeble encouragement, and produced but a tardy progreſs. Knowledge, however, is much more diffuſed than it was fifty years ago; the reign of Charles III. produced diſtinguiſhed perſons in various branches of the ſciences and literature: ſuch as Father *Feijoo*, known from his *Theatro Critico*, in which he has begun to familiarize the Spaniards with a juſt mode of thinking, and to bring them to hazard the bold flights of philoſophy.

Father *Sarmiento*, author of ſeveral good critical works.

Don Jorge Juan, a ſkilful mathematician, and particularly well verſed in ſhip-building.

Don Juan Yriarte, famous for ſeveral literary works, which do honour to his learning and his taſte: theſe four died about five-and-twenty years ago.

And among thoſe which Spain has loſt more recently:

Father Iſla, a Jeſuit, author of ſeveral pieces full of wit and philoſophy, among which his *Fray Gerundio* will long be celebrated; in this he has ſhewn himſelf among bad preachers what Cervantes formerly was to knights errant.

Don Franciſco Perez Bayer, governor of the Infant Don Gabriel, has enriched literature with many works replete with erudition; beſides theſe, many poets, who, if they have not poſſeſſed the ſtrength, and fecundity of their predeceſſors, have yet evinced a taſte to which they were ſtrangers; ſuch as *Cadahalſo*, *La Huerta*, *Don Thomas Yriarte*, known abroad as the author of a celebrated poem on muſic, and ſome entertaining fables.

Among the living, the *Count de Campomanes* deſerves particular mention as a learned hiſtorian, a well informed lawyer, and one of the firſt among the Spaniards, who by his writings has awakened the attention of his countrymen to the means of reſuſcitating induſtry.

Cardinal Lorenzano, formerly Archbiſhop of Toledo *, a prelate as enlightened as beneficent.

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* He is no longer ſuch. Towards the end of the reign of Pius VI. he was delegated to this pontif, in order to conſole him under his misfortunes, as a public teſtimony of the lively intereſt which his Catholic Majeſty

The Chevalier Azara, ſo well known to all thoſe whom an attachment to the fine arts entices to Rome; the elegant editor of the works of Mengs, whoſe friend he had been, and who has lately given a moſt excellent tranſlation, in four volumes, of the life of Cicero by Middleton, ornamented with a preface, and ſome engravings from his cabinet of antiques.

Don Joſeph Guevara, Don —— Murillo, Don Franciſo Cerda, and ſeveral other learned men, who well deſerve to be better known.

Don Eugenio Izquierdo, a naturaliſt, highly eſteemed by our learned characters; and who at preſent is the director of the cabinet of natural hiſtory.

Don Caſimir Ortega, botaniſt, member of the Royal Society of London.

Don Antonio Joſeph Cavanilles, another botaniſt, better known abroad than the preceding; who publiſhed in 1791 a firſt volume, and in 1794 the third of a work entitled, *Icones et Deſcriptiones Plantarum quæ, aut ſponte in Hiſpaniam creſcunt, aut in Hortis hoſpitantur*; in which are deſcribed and delineated one hundred and thirty-ſix plants of the botanic garden, fifty-ſix of the kingdom of Valentia, and a great number of the vicinity of Madrid.

Some comic and tragic poets, of whom we ſhall ſpeak in our deſcription of the theatre; and a number of authors of light poetical pieces.

Literature is generally much more cultivated in Spain, particularly of late, than what is commonly imagined. Although not yet releaſed entirely from their ſhackles, they are not without means of learning what paſſes in their own country as well as abroad. At the beginning of our Revolution, and even during the war, they were very anxious to obtain our newſpapers, and in ſpite of all interdict obtained them. They themſelves poſſeſs ſome periodical works.

Beſides the court gazette, publiſhed twice a week, in which a very ſuccinct account is given of all new works, they have *Uno Mercurio hiſtorico y politico*, which for a long time has made its appearance monthly, and preſents a tolerably impartial account of political events.

They have another work totally of a literary nature, which, ſince 1784, has been publiſhed almoſt uninterruptedly once a month, under the title of *Memorial literario*; the author Don Joachim Ezquerra gives in it an intereſting account of all new productions, beſides ſeveral pieces on morality, literature, political economy, and even on philoſophy.

The Spaniards had for a long time poſſeſſed a periodical work, called *El Eſpiritu de los Diarios majores de Europe*, which in 1798 was ſucceeded by *Las Anales de Literatura, Ciencias y Artes, o miſcellanea, inſtructiva, y curioſa*; which contains extracts from the beſt foreign journals, and many original pieces on ſtatiſtics and geography.

On the ſame rank may be placed a journal modelled after the Spectator, which is printed monthly from 1795, named *Seminario erudito y curioſo de Salamanca.*

Were I to detail the whole of their periodical works beſides the *Mercurio hiſtorico y politico*, a monthly journal for external politics, and *Las Corres mercantes de Eſpagna y de ſes Indias*, which ſince 1792 is publiſhed weekly; I ſhould have to mention a number of newſpapers and journals publiſhed at different cities in Spain, but which have little intereſt out of that kingdom.

Majeſty felt for his concerns. Cardinal Lorenzano remained with him up to the period of the Pope being tranſported into France. After that period he continued to reſide in Italy; furniſhing a proof, that the unexpected miſſion which removed him from his benefice was not occaſioned wholly by an inclination of ſending a comforter to the Sovereign Pontif. The archbiſhopric of Toledo has ſince been given to the Infant Don Lewis, called the Count de Chinchon.

It muſt be allowed that Spain has generally very uſeful and very complete works, on what regards their own country.

This valuable dictionary of their language has before been noticed; they have as well an excellent *Grammatica Caſtillana*, the fourth edition of which was publiſhed by the academy ſix years ago.

They are now actually employed in reprinting their laſt national works, particularly *La Bibliotheca vetus Hiſpanica*, and the *Bibliotheca nova Hiſpanica*, by *Nicholas Antoine*, two works in high eſteem among the learned, and of which a new edition has recently been publiſhed.

Their *Geographical Dictionary* of Spain, by Monpalau, conſidered a complete work, has already run through four editions.

Their *Maritime Spaniſh Atlas* comes nearer to perfection than any maps of the interior of Spain; for that publiſhed by Don Thomas Lopez in 1792 leaves much to be wiſhed for, as I had more than once occaſion to notice in my long excurſions, ſome time after its publication. The Spaniards, beſt acquainted with their country, have, however, aſſured me, that the map of the Aſturias is delineated with the moſt exact nicety.

In 1784 there appeared a publication, entitled *Hiſtoria Critica de Eſpana*, by *Fray Maſden*, who, notwithſtanding his being a Catalan, wrote it in Italian, from which language it has been tranſlated into Spaniſh. This work, which begins with the earlieſt known time, is full of learned and curious reſearches, and diſplays much erudition and ſound criticiſm.

This praiſe is eſpecially due to the Brothers *Mohedano*, two friars of great ſenſe and intelligence, but warped a little by their enthuſiaſtic bias towards their own country. The work is called *La Hiſtoria literaria de Eſpana;* it was begun in 1779, already in 1786 had nine volumes in quarto been given to the public, when, diſpleaſing the Holy Office, it prevented its continuance.

A work leſs pleaſantly indited, very diffuſe, but more uſeful, has been publiſhed by *Don Eugenio Laruga*, which has extended to twenty volumes, *Memorias politicas ſobre la Induſtria, las Minas, &c. de Eſpana.* This work contains the moſt circumſtantial details on the productions of the ſoil, and the manufactures of every deſcription in all the provinces of Spain. It ſerves to prove, that the Spaniards of the preſent day are acquainted with their natural riches, and the utility of labour; as well that they are employed in augmenting and putting them to profit.

Moſt of the patriotic ſocieties likewiſe publiſh intereſting memoirs upon the ſame ſubject, and aſſiſt in eſtabliſhing their experiments.

The taſte for arts and ſciences has ſpread from the capital to the provinces. Seville and Barcelona have each of them an *Academy of Belles-lettres;* Saragoſſa and Valentia an *Academy of the fine Arts;* Valladolid one of *geography and hiſtory;* and Grenada one of *mathematics and drawing.*

CHAP. XI.—*True ſtate of Literature in Spain.—Education.—Manufactures.—Roads.—Canals.—Patriotic Societies.*

THE preceding chapter has diſplayed the title of the Spaniards of the preſent day to literary fame. It will, perhaps, be ſufficient to clear them from the imputations of idleneſs and ignorance.

Yet let us not exaggerate; their literature is very barren in many reſpects. They poſſeſs ſome works relative to the progreſs of the arts, ſuch as that of dyeing, the

veterinary * art, &c.; an elementary treatiſe on mathematics, by Joſeph Radon; a ſummary hiſtory of Arragon up to its reunion with Caſtile; a chronological hiſtory of the Spaniſh nobility; literary notes on Spain, by Mandel; numerous tranſlations from the Latin, Greek †, Engliſh and French; ſome romances, at the head of which are deſerving to be placed three, publiſhed by an ex-jeſuit retired to Italy ſince the extinction of his order, Father Montenjon; called *El Antenor, o de la Crienza de un Principe* (on the education of a prince;) *La Eudoxia*, on the education of a woman: and *El Euſebio*, a work in five volumes in many reſpects reſembling the Emilia of Jean Jaques Rouſſeau; but not one ſingle work truly philoſophical; although to make amends they have an immenſe number of books of piety, both original, and tranſlated. This is the ſum of the modern productions of Spaniſh literature.

It muſt be owned: great obſtacles even yet oppoſe the ambit of this aurora of the arts and ſciences, and prevent the luſtre of meridian day, which has been looked for from the beginning of the preſent century.

1ſt, Thoſe who apply themſelves to the ſtudy of them, do not yet enjoy that conſideration ſo neceſſary to the natural encouragement of genius.

2dly, They ſtill meet with two much oppoſition from fanaticiſm, and its hirelings; leſs diſpoſed certainly to perſecution than it has been in former ages; but its ſilent preſence, in its numerous adherents, is in itſelf ſufficient to extend the ſovereignty of religious *terror* much beyond the ſphere of its activity.

3dly, Education is yet much neglected; or what is worſe than neglect, the riſing generation is taught erroneous principles, and imbibe prejudices which make abortive the happy conceptions of nature, perhaps of greater promiſe among the Spaniards than any other nation. Will it be credited that the expulſion of the Jeſuits has only tended to pejorate this eſſential branch of adminiſtration? At the period when this took place the inconvenience of confiding youth to the care of religious orders was, perhaps, too much magnified. That of the Piareſtes, known in Spain by the name of *Eſcolapios*, is the only one which is left in poſſeſſion of ſome ſchools, and theſe are among the beſt or rather the leaſt bad. The place of the Jeſuits has been ſupplied by profeſſors, who may either be eccleſiaſtics or lay perſons, but who form no collective body nor reſide under the ſame roof. The Jeſuits, beſides the property of the ſociety, had foundations for different profeſſorſhips. Theſe are the only funds appropriated to the ſupport of the new profeſſors. They were ſufficient for monks living in a community, but are very inadequate in the preſent ſtate of things. Profeſſorſhips ſo little lucrative cannot be ſought after by perſons eminent for learning and talents. The education of youth ſuffers therefore by the change and this is a circumſtance of ſufficient importance to deſerve the attention of government.

It has of late attempted ſomething in favour of a part of the eſtabliſhments for education. Spain for a long time has had ſeven principal colleges at which the moſt diſtinguiſhed youths of the country are educated. All who hold ſituations in adminiſtration were formerly inſtructed in theſe. This prerogative and many other abuſes nouriſhed idleneſs and arrogance in theſe colleges, and diſcouraged the other ſchools, with which the youth of people in eaſy circumſtances, belonging to the law, were obliged to

* One particularly by Sigiſmund Macati; who was for ſome time in France, where he perfected himſelf in this art at the beſt ſchool he could have choſen, that of *Chabert* and *Gilbert*; on his return to Spain, he publiſhed *les elementos della arte veterinaria*. He is now firſt director of the ſchool eſtabliſhed at Madrid in 1791.

† Among different tranſlations from the Greek we muſt notice thoſe of Anacreon, Theocritus, &c. Dion by Condi.

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be ſatisfied. The latter had however their turn in the reign of Charles III. Their pupils attained the higheſt ſtations and took advantage afterwards of their influence to leſſen the defects of the chief colleges. Following the ſtimulus thus given, government made new regulations reſpecting them in 1777 from which much good was looked for. It is looked for yet.

Much, however, has already been done for military education. Charles III. eſtabliſhed a ſchool for artillery at Segovia, a riding ſchool at Ocana, one of engineers at Carthagena, and another for tactics at Avila, whence it has lately been removed to Port Santa Maria: at firſt all of them flouriſhed. Every one produced individuals which did honour to the ſeveral inſtitutions. The two laſt however diſappeared with the credit of their founders Generals Recardos and O'Reilly, who died lately, one in battle fighting againſt us, and the other while in preparation for the ſame purpoſe.

We have already ſaid enough to eſtabliſh the opinion of the reader as to the actual ſtate of the fine arts. As to matters of induſtry, manufactures at the beginning of the preſent century were greatly on the decline, ſince then government has been active in reſtoring thoſe manufactories which the Auſtrian dynaſty had left in the moſt deplorable ſituation. Philip V. readily adopted the idea, but did not perſiſt. Ferdinand VI. poſſeſſed a miniſter in the Marquis de la Enſenada, who enjoyed great credit, and joined energy to perſeverance: he ſurrounded himſelf with uſeful co-operators, and availed himſelf of their talents and character. Among other uſeful works, he eſtabliſhed all kinds of manufactories in Spain, and, in order to make them ſucceed, laid heavy duties on the export of raw materials, totally prohibited that of ſilk, and received with open arms the workmen which emigrated to Spain. Valentia and Saragoſſa ſoon found the beneficial effects of this conduct. In the two following reigns, ſome of thoſe manufactures were carried to a ſtill higher degree of perfection. We have already noticed how much was effected by Charles III. for thoſe of Segovia and Guadalaxara. There are manufactures of common cloths at *Eſcaray* in Biſcay, at *Bocairente*, at *Onteniente*, and at *Alcoy*, *&c.* in the kingdom of Valentia, and at *Grazalema* in Andaluſia. In the courſe of this work we ſhall have occaſion to ſpeak of ſeveral others, and it will be ſeen that thoſe of ſilk in particular have engaged the attention of government; that of galoons particularly has arrived at great perfection lately, ſo much ſo that little difference is obſervable between their galoons and thoſe of France. There is a manufactory for hats at Madrid, as alſo at Badajoz and Seville, and for ſome years back foreign manufactories have felt the competition.

Spain alſo owes to the ſovereigns of the houſe of Bourbon the few roads and canals ſhe poſſeſſes. We have already noticed what her government has effected towards the making of roads; as for canals they are yet in their beginning. There is one at the entrance of Madrid, intended to join the Mançanares with the Tagus, and facilitate a communication between the capital and Aranjuez. Two or three leagues of it are compleated; and ſo it remains.

That of Caſtile, long ſince began, is nearly abandoned. The canal projected in Murcia, after taking the neceſſary levels in a bad manner, and afterwards ratifying them, after having obtained funds for carrying it on by the pompous proſpectus held out, has been pronounced impracticable; the ſubſcribers, inſtead of the profits which their avidity graſped at, muſt content themſelves with the moderate intereſt the King has pledged himſelf to pay them.

In 1784 the miniſter adopted a project much more brilliant and uſeful than that he was obliged to abandon; that of a canal, which, beginning at the foot of the mountains of Guadarrama, was to proceed to join the Tagus, afterwards the Guadiana, and terminate

at the Guadalquivir above Anduxar, and which conſequently would give new life and activity to the centre of Spain. A Frenchman, named le Maur, gave in the plan, and was preparing to carry it into execution, but died ſoon afterwards: however the plan was reſolved, its branches ſettled, and the funds for carrying it on were ready; the undertaking was entruſted to the ſons of le Maur, heirs of their father's plans, and in part of his talents. It was afterwards interrupted upon ſome diſpute reſpecting its courſe. War afterwards breaking out brought on an additional obſtacle; however ſince the return of peace its continuance is ſeriouſly contemplated.

But that which ſhould more particularly contribute to the proſperity of Spain, which however has not yet produced all the benefit expected, is the modern inſtitution of patriotic ſocieties, known by the name of *friends to the country*.

The firſt inſtitution of this kind took place in Biſcay. It was ſoon followed by the other provinces, and by the capital, in which a patriotic ſociety was eſtabliſhed in 1775. At the end of 1778 there were already forty-four, and in 1795 ſixty-two. The name of theſe inſtitutions indicates their object. The members of which they are compoſed, encourage the progreſs of the arts, the agriculture and induſtry of their provinces. They propoſe queſtions relative to theſe objects, and give premiums to thoſe who diſcuſs them beſt. They awaken the induſtry of their fellow citizens, animate their zeal, ſolicit their information, give encouragement to artiſans, aſſiſtance and advice to the peaſants, and cauſe the patriotic ardour, with which they are animated, to circulate through every claſs of citizens. Never did a laudable inſtitution make more rapid progreſs or produce more general effect. Thoſe who never ſee the advancement of good but with an invidious eye, or whoſe methodical ſupineneſs is diſguſted with novelty, whoſe ſelf-love is mortified by ſucceſs to which they do not contribute, ſuch have endeavoured to throw ridicule upon theſe ſocieties; they have pretended that the members talked much but performed little; that they exaggerated their importance, diſcuſſing trifles with pompous gravity. Undoubtedly they have not yet done every thing which may be done; their ſlender funds circumſcribe their progreſs; but the great point was to rouze their country from its ſtupor, to offer a ſtimulus to the talents of artiſts and the labour of huſbandmen, to excite their emulation by the proſpect of fame, and their intereſt by the expectation of profit. This is what the ſocieties have already effected. The leiſure and ſavings of peace from 1783 to 1793 have been employed by government to furniſh means for increaſing their beneficence. In the beginning the funds of theſe ſocieties conſiſted chiefly in voluntary contributions: government joined to this ſlender ſtock the funds of the ſtock called *Spolios y vacantes* (the produce of vacant benefices and fines, which belong to the King.) Charles III., in ſpite of his religious ſcruples, did not heſitate in granting thus a part of the property of the church to the encouragement of theſe ſocieties.

The patriotic ſocieties have received other encouragements from government. Enlightened by them, it has revived laws which had fallen into diſuſe. It has excluded ſuch foreign merchandize as might be prejudicial to the national manufactures, and has procured to theſe ſuch workmen as may improve and perfect them. Theſe meaſures have already been prejudicial, and will become ſtill more ſo, to other manufacturing and commercial nations; they may excite in them murmurs and alarm, they will doubtleſs reanimate their activity and vigilance, but muſt meet with the applauſe of real patriots, whatever be their country. France itſelf might even follow the example of Spain, and form ſimilar eſtabliſhments. Her new organization is readily adaptable to the meaſure. A patriotic ſociety in every principal town of her departments would contribute to viviſy that induſtry which in many places has arrived at perfection in different branches,

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and is every where of fruitful growth. Similar ſocieties would have in France a better ground to work upon. Its crops would undoubtedly be of more ſpeedy growth and more abundant. Let us ſhew our allies that if we criticiſe with ſharpneſs we yet can ſometimes take example from them.

The patriotic ſociety of Madrid is diſtinguiſhed from the others only by the more immediate protection of government, and by its ſituation, which gives it a greater facility of acquiring information and aſſiſtance. It has, perhaps, fewer objects, on which to exerciſe its zeal, becauſe the productions of New Caſtile, in the centre of which it is placed, are leſs various than thoſe of the other provinces, and becauſe its induſtry is more confined. But it is attentive to the improvement of agriculture in the environs of Madrid, and to furniſhing the children of both ſexes and the poor of that capital with employment.

A perfect equality is the moſt ſacred law of all theſe ſocieties; rank is unknown in them; the Archbiſhop of Toledo, and the Duke of Medina Celi, may be met with placed by the ſide of an artiſan, and information is welcomed from whatever ſource it may ſpring.

CHAP. XII.—*Council of Caſtile.—Corregidor and Alcaldes.—Legiſlation.—Influence of the Monks; of the King's Confeſſor particularly.—Authority of the Court of Rome repreſſed.—The Concordat of* 1753.—*Riches of the Clergy.—Progreſs of Philoſophy relative to the Prieſthood.*

AS Madrid is the centre of arts and ſciences, ſo is it that of government. Although the Monarch reſides there but a few weeks in the year, and his miniſters be always near his perſon, this city is the ſeat of government, and all the ſupreme tribunals. We ſhall take a view of them collectively; which will naturally lead us to ſpeak of the laws, religion, finance, and military force of Spain.

The Council of Caſtile holds the firſt rank among the councils and tribunals of the kingdom; it is at once a council of adminiſtration and a ſovereign tribunal, that has an excluſive cognizance of certain cauſes, and in certain caſes receives appeals from the other tribunals. As a council it has the inſpection of all interior operations intereſting to the commonweal.

It is compoſed of five chambers:

1ſt, The *Sala de Govierno*, which is confined to the affairs of adminiſtration; it receives references brought to the council, but it is only to ſend them to the ſecond *Sala de Govierno*, or to the *Sala de Juſticia*.

2dly, The ſecond *Sala de Govierno* judges the cauſes ſent to it by the former; and is particularly charged with matters relative to manufactures, bridges, and cauſeways.

3dly, The *Sala de mil y quinientos*, or of one thouſand five hundred, thus called becauſe thoſe who appeal to it from the ſentences of the ſovereign tribunals are obliged to depoſit fifteen hundred ducats, which they forfeit in caſe of loſing the appeal.

4thly, The *Sala de Juſticia*, has an excluſive cognizance of certain cauſes; but for the judgment of ſuch as are capital is united to the others.

5thly, The *Sala de Provincia* judges the appeals in all important caſes, and receives thoſe made from the deciſion of the two civil lieutenants of Madrid (*Tenientes de Villa*), and from thoſe of the *Alcaldes de Corte* in civil affairs.

Theſe collectively form a ſixth chamber, called the *Sala de los Alcaldes de Caſa y Corte*, reſembling that known formerly among the French by the name of *La Tournelle*. The city of Madrid is divided into a certain number of quarters, and the police of each is ſuperintended by an *Alcalde de Corte*: who judges cauſes in the firſt inſtance, in concur-

rence with the civil lieutenants. The decifions of any feparate one may be appealed from to the whole chamber aſſembled, which alone can finally pronounce upon criminal cauſes within its juriſdiction. It is in extraordinary caſes only that they are carried before the Council of Caſtile.

The chamber of the *Alcaldes de Caſa y Corte* was formerly the tribunal which always accompanied the court of Spain. Since this is fixed at Madrid, the tribunal has been fixed there alſo; and as it formerly had a provincial juriſdiction around the reſidence of the ſovereign, it has ſtill preſerved ſuch a juriſdiction to a certain diſtance from the capital.

The Council of Caſtile is the only one acknowledged by the grandees of Spain, and all its members have the right of *committimus*, like thoſe of the French parliaments.

Spain is divided into two chanceries, thoſe of Granada and Valladolid, which have an excluſive cognizance of certain cauſes. Their deciſions are not appealed from to the Council of Caſtile, except in two caſes, when the appellants addreſs themſelves to the chamber of *Mil y quinientos*, or upon a denial of juſtice. Each chancery has a particular chamber, called *Sala de Hidalgos*, or chamber of nobles. Its office is to authenticate nobility, and to hear cauſes relative thereto. It has alſo an excluſive cognizance of the criminal cauſes of the *Hidalgos*.

Beſides theſe there are eight audiences, without reckoning the particular tribunal of Navarre, which has the title of *Royal Council*. The four audiences of the crown of Arragon are thoſe of Saragoſſa, Barcelona, Valentia, and Majorca; and of the crown of Caſtile, thoſe of Seville, Corunna, Oviedo, and the Canaries.

Each chancery and each audience has a criminal court, *Sala de Crimen*, which definitively pronounces criminal ſentences, and cauſes them to be executed.

Except a few reſtrictions, theſe tribunals have equal power. The principal difference between the chanceries and the audiences is, that the firſt act in the King's name like the Council of Caſtile. There are alſo ſome caſes in which appeals lie from the audiences of Corunna and Oviedo to the chancery of Valladolid, and from the audience of Seville to the chancery of Granada. But from the four audiences of the crown of Arragon the appeal (in certain caſes) is immediately made to the Council of Caſtile, where the cauſes in queſtion muſt be determined according to the laws of Arragon.

The limits of theſe different juriſdictions are not clearly enough defined to prevent frequent conteſts between the courts. Whilſt the Council of Caſtile loſes no opportunity of extending its juriſdictions, the chanceries and audiences inceſſantly ſtruggle to ſupport their ſupreme authority. Unleſs in caſes of appeal, which are rare exceptions to the general rule, there is no reſource againſt the deciſions of all the ſovereign tribunals, but reviſion, which in Spain is called *ſupplica*. Appeals, in that caſe, are made to the tribunal itſelf, praying it to reviſe the proceſs.

The heads of the chanceries are called *Preſidents*, and thoſe of the audiences *Regents*.

The head of the Council of Caſtile has the title of Preſident or Governor: theſe two dignities differ but little, except in honorary rank. The Preſident of the Council of Caſtile muſt always be a grandee of Spain. When he appears in public, he has particular privileges.

After a long interval, this place was renewed in the perſon of the Count d'Arunda in 1766, in one of thoſe critical moments which call for men of reputation; as he was at the ſame time captain-general of all Caſtile, this union of civil and military power gave him a very extenſive authority, which he manifeſted poſſibly with too much energy. He made ſome enemies, and gave umbrage to the Monarch himſelf; he was conſequently obliged to forego his preſidency in 1773, in order to go ambaſſador to France, which

character

character he filled for ſixteen years. Whatever may be ſaid of M. d'Aranda, during and ſince his adminiſtration of ſeven months, he conducted himſelf in ſuch a manner that Spain will for a long time remember the talents he diſplayed. Madrid, in particular, will not forget what he effected towards its embelliſhment, its ſecurity, and even its amuſements. It is to his care and prudence that Spain owes the expulſion of the Jeſuits, prepared with the greateſt ſecrecy, and executed without tumult. He alſo procured an account of its population, reſpecting which, before him, there was but a very vague idea. Thanks to him, the diſſipated and frequently licentious lives of the monks were reformed, and their manners rendered more ſuitable to their profeſſion. The abuſes of the aſylum which the greateſt criminals found in the churches were ſuppreſſed. The temporal authority was defended againſt the pretenſions of the holy ſee; bounds were ſet to thoſe exterior practices of religion, the daily proceſſions known under the name of *Roſarios*, more favourable to idleneſs than devotion; and in ſome reſpects, as we ſhall hereafter find, the power of fanaticiſm was ſubject to controul. He would have proceeded much farther but for the fatal interference of the confeſſor of Charles III., who, in every thing which regarded conſcience, counterbalanced the weight of Arunda with His Majeſty. Since his forced reſignation of the preſidency of the Council of Caſtile, the court abſtained for eighteen years from nominating another; he was ſucceeded by a ſenſible and moderate eccleſiaſtic, M. de Figueroa, who had only the title of Governor of the Council. After his death the Count de Campomanes, as oldeſt member of the Council, diſcharged the functions of governor, without having the title till ſeveral years afterwards; but, on my returning to Spain in 1792, I found the Count de Ceſſuentis, a Spaniſh grandee, preſident. He died that year, and has had three ſucceſſors, who only bore the title of governor; that is to ſay, an old magiſtrate, the Count de la Canada, afterwards the Biſhop of Salamanca, and, laſtly, the preſent governor, *Don Joſeph Euſtachio Morena*, who before that held one of the higheſt ſituations in the magiſtracy. The preſidency appeared at that time to be again ſuppreſſed.

In general, the oldeſt members of this council form what is called in Spain the *Camara*, which is the chamber of the council. It is properly the privy council of the Monarch, and at the ſame time a ſovereign tribunal for certain cauſes, ſuch as all which have relation to the ſucceſſion of the royal family, and all conteſts relative to the rights of cities (*Ciudades*). It is alſo the council which iſſues all patents of royal favour; and recommends to His Majeſty, through the medium of his miniſter of favour and juſtice, three perſons to fill every ſituation in the magiſtracy, and the King chooſes one of the three.

No place in the magiſtracy is venal in Spain. This, like all human inſtitutions, has its advantage and inconvenience. It leaves a greater opening to caprice, favour, and intrigue, it prevents the tribunals from being diſhonoured by incapacity and ignorance, and diminiſhes the temptation to ſell that juſtice of which the right of diſpenſing is bought. It is true, that the integrity of magiſtrates frequently without fortune muſt appear ſuſpicious, and that their moderate fees ſeem but a weak rampart againſt corruption. However, notwithſtanding the declamations of diſſatisfied clients, iniquitous and partial judges are not more common in Spain than in other countries. On the other hand, the *Eſcrivanos*, a ſort of lawyer correſponding with our ſolicitors and notaries, do not ſeem to me to have ill deſerved the reputation they generally hold for rapacity and pettyfogging tricks.

There is a kind of gradation in the Spaniſh magiſtracy of which the degrees are regularly aſcended. All the members of the *Camara* are former counſellors of Caſtile; theſe ſeldom obtain their places without having been preſidents of a chancery or an

audience, or at leaſt formerly counſellors of one of theſe tribunals, or *Alcalae de Corte*. In the ſame manner it is from among the advocates, *corregidors*, or *alcaldes mayores* that the latter are choſen. It is here neceſſary to give ſome account of theſe *Alcaldes*, of whoſe offices foreigners in general have but a very confuſed idea. Firſt, there are two claſſes of ſimple Alcaldes, who are eſtabliſhed in the cities, boroughs and villages. The *Alcalde ordinario* judges in the firſt inſtance, where there is no corregidor, but in places where there is one, has cognizance of civil cauſes in concurrence with him, and thoſe alone: the *Alcalde pedaneo*, who is commonly taken from the common people, has no other function but to arreſt delinquents, and execute the orders of the corregidors, or the alcalde mayor.

The ſimple *Alcaldes* are differently appointed, according to the privileges of the different communes. In ſome places they are choſen by the municipality (*ay unlamuntos*), in others, by lot; while in different ones they are named by the council of Caſtile, the tribunal of the province, or the lord of the manor, who chooſes one from three perſons propoſed to him. They are changed every year.

The *Alcaldes Mayores*, or *Corregidors*, are all named by the King upon the preſentation of the Camara. This inferior degree of magiſtracy was formerly under very improper regulations, which government has lately reformed. The place of corregidor was beſtowed on perſons of ſmall fortune, who held their places three years, when their office expired, and they were again obliged to have recourſe to new ſolicitations. How could it be hoped, that men with want ſtaring them in the face, would not be violently tempted to inſure themſelves reſources at the expence of thoſe over whom they poſſeſſed a tranſient authority? It was, at length, determined to furniſh them with motives for emulation, and keep them from temptation by enacting, that for the future they ſhould continue in office ſix years inſtead of three; that there ſhould be three claſſes of *Corregimientos*; from one claſs of which they ſhould paſs to another, after having well diſcharged the duties of their former place; that their emoluments ſhould be increaſed at every removal; and that having thus gone through the three claſſes to the ſatisfaction of His Majeſty, they ſhould have what in Spain is called the honour of *Togado*, that is, the title and prerogatives annexed to the place of counſellor of the ſuperior tribunals. This plan, worthy of a well-organized republic, was conceived by M. de Campomanes, and executed by M. de Florida Blanca, when miniſter of favour and juſtice, an effort which may be looked upon as meritorious on the part of the latter, for theſe two men, formerly colleagues, and then rivals, were never friends.

Beſides theſe three claſſes of corregidors, there is one of another kind: it is thoſe of Madrid and Seville, two cities in which the magiſtracy is peculiar and diſtinct. The corregidors are for life, and muſt not be taken from the profeſſion of the law; they are no more than chiefs of the police who preſide at city meetings, bull-fights, and the public acts of the city. The civil lieutenants, *Tenientes de Villa*, have a juriſdiction independent of their authority, but theſe ſupply their places in preſidencies. Beſides theſe, Madrid and Seville have *Regidores*, a kind of inſpectors, who maintain the police in concurrence with the corregidor *.

* At Madrid in every quarter there is an *Alcalde de Barrio*, a ſort of commiſſary who, ſubject to the *Alcalde de Corte*, ſuperintends the maintenance of the peace. Laſtly, there is a magiſtrate, called *Superintendante*, eſpecially charged with the management of the police in concurrence with the *Alcaldes de Corte*, the *Corregidor*, the *Tenientes de Villa*, and the *Regidores*. This place, which much reſembles that of the former *Lieutenants de Police* at Paris, inveſts a conſiderable power in the hands of the holder; by means of which he not only becomes formidable to all the diſturbers of public order, but, at times, alarms with his vexatious vigilance the moſt obſcure and inoffenſive dwellings Such as may have lived at Madrid towards the end of the reign of Charles III. will not heſitate to place at the bottom of this portait the name of *Cantro*, that chief of the police, who for more than ten years was the ſcarecrow of the weak much more than the guilty at Madrid.

From

From this conſtitution, which is certainly ſomewhat complicated, reſults frequent claſhings of juriſdiction among the magiſtrates; but, on the other hand, there are few cities in Europe in which the police is better regulated than at Madrid, where there is more ſafety, or where fewer crimes are committed which eſcape the vigilance of juſtice.

It now remains to conſider, by what code of laws juſtice is adminiſtered in Madrid, as well as in the reſt of the kingdom. It might be ſaid, ſtrictly ſpeaking, that the Roman or civil law has no power there. This, by ſome old ordinances of the kings of Caſtile, is even forbidden, under ſevere penalties to be quoted. Theſe laws, however, are frequently conſulted in practice; and lawyers, without looking upon the code as infallible, derive from it frequently both information and precedents. The form of proceſs in Spain is conformable to the Roman law, except a difference in terms and in the production of documents. They are reported, not as in France by members of the tribunal, but by particular magiſtrates, called *Relatores*, whoſe places are very lucrative, and conſequently much ſought after. In important caſes, one of the counſellors is deputed to examine the proceſs, and make his report to the tribunal.

The only authentic laws by which juſtice is adminiſtered, are regiſtered in the codes publiſhed by the ancient kings; ſuch are the *Ley de las ſiete Partidas*, the *Ordenamiento-Real*, the *Fuero-Juzgo*, and *Fuero-Real*. The principal code, that which is in conſtant uſe, is called *Recopilacion*. It is a collection of various and diſtinct edicts of the monarchs of Spain from the earlieſt ages to the preſent reign. A new edition is given from time to time, in which all the laws publiſhed ſince the laſt are inſerted.

It was pretended in certain foreign prints, that Charles III. intended to give a new criminal code to Spain. The aſſertion was untrue. The rumour had its origin in the council of Caſtile, by the agency of the Count de Campomanes, who was then one of its *fiſcales*, having propoſed the reviſion and reform of the old criminal laws, ſome of which were abſurd or diſguſting. I know not whether this work be yet completed, but it has already produced a tract on the penal laws, the work of a young lawyer named *Lardizabal*, which appeared in 1784, and may be read with pleaſure and advantage, even after the celebrated eſſays of the Marquis of Beccaria.

This is the proper place to ſpeak of the torture; that barbarous inſtitution againſt which that modern philoſopher has ſo forcibly exclaimed. It is not yet formally aboliſhed in Spain, and ſtill finds ſome defenders. A few years ago an eccleſiaſtic, named Caſtro, undertook a formal apology for it; but his work, which inſpired almoſt general indignation, was victoriouſly refuted, to the great ſatisfaction of the reaſonable part of the nation.

The canon law is the received code in Spain in all eccleſiaſtical affairs. It muſt not, however, be imagined, that the court of Madrid pays implicit obedience to the orders of the Holy See; as one is tempted to conceive from the part played even now in Spain by the numerous legions of modern Rome, which, like the ancient, aſpires to univerſal dominion. Religion and its miniſters are without doubt ſtill held in the greateſt veneration, and the prieſts and monks, under the pretext of directing conſciences, take part at times in temporal concerns, and abuſe the confidence placed in them by credulity. But theſe abuſes, even under the reign of the more pious monarchs, were in many reſpects ſuppreſſed; after being for a great part of the laſt century encouraged by their example. The dangerous influence which Father D'Aubenton, and his ſucceſſors of the ſame order enjoyed at the court of Philip V. is remembered with indignation; as likewiſe that of Father Rabago, the laſt Jeſuit who ſat in the confeſſional chair of the Spaniſh monarchs, with Ferdinand VI. The confeſſor of the laſt King for a long time

was a Franciſcan, who afterwards became Biſhop of Oſma, who would willingly have ſo far mortified his humility as to have accepted the Roman purple. Of an auſtere and fretful diſpoſition, he was very attentive to his penitent; but (whatever may have been ſaid of him,) meddled very little with matters foreign to his function. Charles III., although he continually treated him with that deference due to the director of his conſcience, more than once repreſſed the fervency of his zeal. Nor, ſpite of the devout character of the King, could he make any attempts upon him with impunity. On my firſt viſit to Spain, when the theatre at Saragoſſa was conſumed by lightning, the father confeſſor was deſirous of impreſſing on the mind of His Majeſty, that evidence was thus afforded by Heaven itſelf, how obnoxious profane ſpectacles were in its ſight, and entreated him, conſequently, to cauſe them to be ſhut up throughout the monarchy. He continually wearied him with ſolicitations to this effect, but Charles III., little diſpoſed as he naturally was to irritation, cut him ſhort with a firmneſs nearly approaching to anger. M. de Florida Blanca, who, after a long reſidence at Rome, had imbibed more philoſophical ideas than religious ones, frequently oppoſed the peeviſh ſcruples of the director of the royal conſcience, and conſequently was little beloved by him. The confeſſors of the preſent court no longer poſſeſs this blind fanaticiſm. The King's confeſſor is a Cordelier, who has obtained his ſtation through the favour of the Prince of the Peace, his countryman, and had an archbiſhopric ſpeedily attached to his office. That of the Queen has for a long time back held the confeſſional chair. Both are reputed to be men of ſenſe and addreſs. Both are admitted to the intimacy of the royal couple; but their credit is ſmall; it is eclipſed, like that of every other, by the ſplendor of the luminary from whoſe center all rays of favour diverge.

Throughout almoſt the entire reign of Charles III., his confeſſor was conſulted upon filling the vacant biſhoprics and other eccleſiaſtical dignities, which were at the diſpoſal of the King, and in this point of view might be conſidered as poſſeſſing the nomination to benefices. But even in this reſpect, his influence was afterwards circumſcribed, and the appointment to vacant ſees veſted in the Count de Florida Blanca, as miniſter of favour and juſtice.

This right of the Kings of Spain to nominate to the great benefices of their dominions has been peaceably allowed only ſince the year 1753, the date of the compact between the Spaniſh court and the Holy See; till then the collation to benefices had been the object of frequent conteſts between the two courts. Negociation was at laſt reſorted to as the beſt mode of determination; for this purpoſe, Spain deputed the Abbé de Figueroa, a man of a mild and conciliating character, and who has ſince been at the head of the council of Caſtile. The reſult was the compact which has irrevocably ſettled the relations between the crown of Spain and the court of Rome.

The Holy See confirmed the ancient right of the Kings of Spain to the nomination to all conſiſtorial benefices.

The principal conteſt turned upon regular and ſimple benefices. The popes claimed a right to confer thoſe at leaſt which became vacant in the apoſtolical months; but the compact enumerated fifty-two benefices which ſhould be at the nomination of the Holy See, with obligation to confer them upon none but Spaniards; and it was alſo ſtipulated that the pope ſhould not delegate this power of collation; that the benefices ſhould be exempt from penſions, and that the titularies ſhould pay no *cedulas bancarias*. Theſe were contracts made with the apoſtolical chamber, by virtue of which the candidate engaged to pay a certain ſum. This ſum he frequently did not poſſeſs; in which caſe the apoſtolical chamber advanced it at an enormous intereſt, and kept agents in Spain to ſee theſe engagements fulfilled. Theſe ruinous abuſes, which it was wondrous ſhould

ſubſiſt in Europe in the 18th century, ſent to Rome, one year with another, a fifth of the revenue of all the benefices.

This was not the only impropriety aboliſhed by the compact. Previous to it the pope had always diſpoſed of the *ſpolios y vacantes*, that is of the property of deceaſed prelates and the revenues of vacant benefices. The adminiſtration of theſe funds was confided to an office compoſed of Italians, ſo expert in this buſineſs that a fourth of the produce of theſe benefices diſappeared by their rapacious management. By the compact the Holy See renounced theſe revenues under the ſingle condition that the adminiſtration of the *ſpolios y vacantes* ſhould be granted to none but an eccleſiaſtic; which trifling reſtriction does not however prevent the Kings of Spain from diſpoſing of them according to their pleaſure. The miniſter they name employs a part of them in making advances to the new prelates who want money for their eſtabliſhment. *It has been remarked, to the praiſe of the dignified Spaniſh clergy, that the repayment of theſe advances has never been known to be neglected.*

Although it be ſtipulated by the compact that the produce of the *ſpolios y vacantes* ſhall be wholly conſecrated to pious uſes, the King, as we have obſerved, makes no ſcruple of employing a part of them in the encouragement of induſtry, and even in reward of military ſervices: but the chapters commonly choſen to liquidate the property of deceaſed prelates, and to adminiſter to the revenues of great vacant benefices, ſometimes reduce them to one-fourth of their real value.

As the compact deprived the Holy See of ſome revenues, the court of Madrid in compenſation engaged to pay it for one part thereof, ſix hundred thouſand Roman crowns, bearing intereſt till paid of three per cent. and on the other a ſum of three hundred and ten thouſand crowns bearing the ſame intereſt. Laſtly, the bull of the cruſade was rendered perpetual. Beſides theſe contributions which Spain pays to the Holy See. The produce of marriage diſpenſations ſtill remains in the poſſeſſion of the latter, and may be eſtimated at fifteen hundred thouſand livres (62,500*l.*) a year.

Since that period the court of Madrid has warmly defended the rights of ſovereign authority againſt the pretenſions of the Holy See. It is not forgotten in what manner it received the admonition of Clement XIII. to the infant of Parma. The council of Caſtile ſuppreſſed all the copies, and commanded the ſame to be done with all the letters, bulls and briefs which ſhould be found contrary to the royal rights or to the meaſures taken by government, renewing the ancient law which denounced the *pain of death and confiſcation* againſt any perſons who ſhould dare to note them.

On this occaſion the council of Caſtile, of which the count d'Aranda was then preſident, put in force every public act by which the Kings of Spain, from the time of Charles V. had endeavoured to hinder the admiſſion of the bull *in Cæna Domini*, ſo far as it was prejudicial to the ſovereignty and juriſdiction of the temporal tribunals, and commanded all archbiſhops and biſhops of the kingdom to prevent its publication and enforcement in their ſeveral dioceſes.

Spain has beſides the reſource of its *appeals from abuſes* againſt the court of Rome.

In 1784 a Spaniſh work appeared, on this ſubject, intitled *Maximas ſobre recurſos de fuerza y proteccion.* The clergy, and eſpecially the holy office, the ancient conſtitution of which was printed at the end of the work, endeavoured to prevent its publication; but the council of Caſtile and the miniſter openly protected the author.

It was at the ſame period alſo that the powers and privileges of the nuncio in Spain were confined to a diſtinct extent, for notwithſtanding the ordinances of the preceding ſovereigns, the nuncios frequently took advantage of the deference which the Spaniards paid them to exceed their rights.

Under the preſent reigning family, they made other attempts in which they failed. At length, in 1771, the court of Madrid obtained from pope Clement XIV. a brief, which gave a new form to the nunciature, and ſubſtituted in lieu of the auditor of the nuncio, who was the only judge of this tribunal, a rota modelled by that of Rome, and compoſed of ſix eccleſiaſtics, named by the ſovereign pontiff it is true, but preſented by the King of Spain.

It muſt beſides be obſerved that Spain has long ſince adopted maxims, with reſpect to the independence of the ſovereign power, very ſimilar to the four famous articles which were ſanctioned by the aſſembly of the clergy of France in 1682, and which all ſubjects, upon taking upon them public employments, are obliged to ſwear to obſerve.

There ſtill exiſts in Spain, however, a very great abuſe ariſing from wrong notions of religion. This is the extreme riches of the monks and clergy. Next to the eccleſiaſtical principalities of Germany, the richeſt catholic prelacies are found in Spain. The archbiſhoprics of Toledo, Seville, St. Iago, Valencia, and Saragoſſa, have larger revenues than any had in France. There are monaſteries, and particularly ſome of the Carthuſians, the property of which extends to the greateſt part of the diſtricts in which they are ſituated; and theſe religious foundations, while they depopulate and impoveriſh the neighbouring country, increaſe poverty and idleneſs by indiſcriminate charity.

Government, however, which becomes more and more enlightened, is endeavouring to remedy the conſequence of this ſtate of things. In the firſt place the wiſdom manifeſted in the choice of prelates hinders that diſplay of offenſive luxury which, by irritating indigence, diminiſhes the reſpect due to religion: and notwithſtanding there yet remain ſome few fanatics among them, they are, collectively, venerable from the auſterity of their manners and their charitable diſpoſitions; all of them employing a great portion of their income in alms-giving and many conſecrating a part to the encouragement of induſtry; and this is not the only manner in which the riches of the clergy contribute to the good of the ſtate. As well as that, by being obliged to reſidence at their ſees, their income is conſequently expended on the ſpot, to the great emolument of the country; it will be ſeen, when we come to treat of the taxes, that they pay conſiderable contributions. Beſides theſe, the court of Madrid has obtained from the Holy See, the power of charging all the great benefices with the payment of penſions even to a third of their produce; and by a brief in 1783, this power was extended to all the ſimple benefices, which produce upwards of two hundred ducats, or about five hundred and fifty livres, and during the laſt war, which rendered freſh taxes neceſſary, eccleſiaſtical property, with the conſent of Rome, has been laid under contribution even in a higher proportion than that of the laity.

The Spaniards ſaw, perhaps more clearly than other ſtates which pretend to more philoſophy, the abſurdity of having religious orders, and ſuffering the heads of them to reſide out of the kingdom. In conſequence of this, notwithſtanding the remonſtrances I was inſtructed to make in 1785, the Carthuſian monaſteries in Spain were delivered from their dependance upon the grand Chartreuſe; and the miniſter Florida Blanca aſſured me when I left Madrid that there were but two monaſtic orders, which had their principals or generals at Rome; and the death of theſe two was only waited for to detach their orders from ſuch a dangerous inſubordination. It does not appear however that the intention has hitherto been effected.

A philoſopher in ſome reſpects, this miniſter muſt be allowed to have had very juſt ideas of certain matters. For a many years he had been a cloſe ſpectator of the Holy See, and its profane adherents, and had brought back from Rome the habitude of contemplating

templating the objects of the veneration of the faithful without enthusiasm. Roda, his predecessor in the ministry of mercy and justice, had also resided a long time at Rome, as auditor of the *rota*. On his return, notwithstanding he was officially surrounded by monks and priests, he entertained and even professed opinions respecting the usurpations of the court of Rome, which were looked upon as rash, which were on the contrary but reasonable, and to these he conformed himself in his transactions. Were Spain to have an uninterrupted succession of administrators similar to these two, and resembling some of the ministers of the present day, soon would she be released from the holy gyves, which have so sorely galled her for the last two centuries.

Throughout the present her progress is perceptible. Other proofs exist of it beyond what we have hitherto mentioned. The severity with which the court of Madrid has treated the Society of Jesus, the continued vigour with which it pursued the Jesuits, even to their extinction in the court of Rome, the tranquillity of the nation whilst these measures were carrying into execution, prove that Spain crouches not so much as it is commonly believed beneath the yoke of superstition, and the absolute empire of the monks.

CHAP. XIII.—*Charges against, and defence of, the Inquisition.—Enumeration of the auto de fés of a recent date.—Adventures of M. d'Olivadis.—Present state of the Inquisition.—Of the Santa Hermandad, or holy brotherhood.*

THERE is yet one religious institution in Spain to which philosophy mourns to see that nation subject, I mean the Holy Office, that tribunal to which every odious epithet has long been applied, and which has still in Spain two powerful supporters, policy and religion.

The frank impartiality with which I explained myself on the subject of the Inquisition in my first edition, drew upon me reproaches of a very different complexion. On the one hand, some Spaniards, in other respects well informed, accused me of having too much heightened the colours in which I had painted the Holy Office; on the other, the French, after reading the description I gave of it, accused me of too much moderation, and even of imposture. Placed between these two shoals how am I to steer: should I relate what I have seen, and give my own opinion? I did so before; I shall continue the same line of conduct.

Its defenders alledge that the authority of the sovereign finds in the Holy Office a means of making itself respected, since by enchaining the consciences of the subjects, it provides additional security for their obedience, and prevents those variations and incertitudes in religion which have but too frequently disturbed the peace of society. They assert that by its means the true faith preserves its unity and purity, and attribute to the Inquisition the tranquillity which Spain has in this respect constantly enjoyed, while the other Christian states of Europe, at different periods, have experienced all the bitterness of dogmatic quarrels, and the turbulent zeal of innovators.

Others go still farther. Will it be believed that a magistrate, otherwise distinguished for learning, and who presented some energetic representations to Philip V. upon the usurpations of the Holy Office (I allude to Macanaz); will it obtain credit that such a man should be their partizan? He, however, wrote a work in 1756, not reprinted, however, until 1788, which has for its title, *Defensa Critica de la Inquisition.*

In it he states that, by the allowance of heretics themselves, the Holy Office never seizes upon any one before the crime with which he has been charged has been substantiated by five witnesses; nor condemns until two additional testimonies appear to authen-

authenticate the charge of the firſt, where it is not rendered unneceſſary by the confeſſion of the culprit; that for the firſt and ſecond offence it grants abſolution, upon the accuſed perſon craving pardon; that it judges errors only according to *the counſel of the moſt enlightened doctors of the church*; that the culprit is well taken care of in priſon, and heard as often as he may require; that the heads of the charges of which he ſtands accuſed are read to him, *hiding nothing but the names of the witneſſes*; but if *error in him be proved*, and not retracted, ſecular juſtice adminiſters the penalties applicatory to the crime according to law.

In this account much truth is contained, which, however, ſhould it be entirely correct, does not tend to leſſen the horror which the Inquiſition inſpires. It appears to be proved, (if proofs can be expected at all where the parties concerned are enjoined to ſecrecy, under pain of the moſt dreadful puniſhments,) that the priſoners of the Inquiſition, although inacceſſible to any viſit from the exterior of their priſon, are well treated and well fed; that the phyſical tortures to which it is pretended they are ſubject are mere chimeras, invented by reſentment, and propagated by credulity, ſo fond of matters which have any things of extraordinary to recommend them; or, if they be at all practiſed, that the occaſions have been exceedingly rare.

Macanaz adds, that agreeable to the confeſſion of the greateſt enemies of the Inquiſition, ſuch as go of themſelves to declare their crimes, and repent, are treated with mildneſs; that thoſe which they arreſt, if they retract, they obtain forgiveneſs; that in charging them with ſeizures *for the ſake of gain*, they are calumniated, ſince the confiſcation is for the advantage of the ſovereign.—But what muſt one think of Macanaz and of his apology, when with ridiculous gravity he affirms that the Inquiſition "*impoſes no puniſhment*" on thoſe who are fixed in their error, and "*aſks for nothing but the ſalvation of the life of the guilty*;" that if they become converted, it confines itſelf to applying canonical puniſhments, but that the ſword of the law, which the monarch preſerves in the tribunal for the chaſtiſement of the guilty, "*is ſometimes reddened with the blood of criminals?*" ... Yet even then it is done with the *holy view* of converting many by the puniſhment of one, "*as it commonly happens*" ... Reaſoning is unneceſſary, ſilent indignation is the only reply ſuch phraſes claim; and theſe from a magiſtrate! from a pretended philoſopher! and in the eighteenth century!

Recrimination is one of the principal modes of defence adopted by Macanaz. In this view he preſents a horrible picture of the perſecuting reign of Elizabeth; and cites the atrocities exerciſed in France by the heretics. According to him the procedure of the Inquiſition is a model of juſtice and mercy, compared with the horrible treatment they experienced. Thus, according to Macanaz, and doubtleſs the ſame ſentiments exiſted in thoſe who have cauſed his works to be printed and reprinted; becauſe our anceſtors were blind and atrocious, our contemporaries, who are perhaps a little leſs ſo than they were, or rather let me ſay, than of our contemporaries, who give the form and title of juſtice to the cruelty of enthuſiaſm, (and who are much leſs pardonable, ſince they have not for excuſe the delirium of the paſſions,) thoſe have juſt pretenſions to eſteem and reſpect; ſo becauſe they do not exterminate by myriads, like Pizarro, they poſſeſs the humanity of a Fenelon!

The antagoniſts of the Inquiſition, both ancient and modern, maintain, on the contrary, that it has conſtantly excluded knowledge from Spain, that it has pampered ſuperſtition and fanaticiſm, and kept the mind in that ſervile ſubjection calculated to repreſs thoſe vigorous efforts of genius by which great works of every kind are produced; that in freezing the heart with fear, it prevents the ſweet effuſions of confidence and friendſhip, deſtroys the moſt intimate connexions which conſtitute their charms, and

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for two entire ages has ſentenced Spain to ignorance and barbariſm. This picture is not in truth an exaggeration in any great degree; but as I have interdicted all declamation on my part, in ſpite of the horror which I feel for the Inquiſition, I will maintain that it is ſenſible in Spain of the revolution which has been effected in the manners of the age in all countries; and if this revolution has not altered the primitive conſtitution of the Holy Office, it has at leaſt tempered its ſeverity, and rendered it leſs viſible and leſs frequent. *Auto de fés* are not the ſame pompous ſolemnities as formerly, whoſe gorgeous diſplay, under the pretence of honouring religion, inſulted humanity: heretofore the whole nation ran to them as to a triumph, and the ſovereign and all his court were preſent; imagining that thus they performed an act of the moſt meritorious nature in the eyes of the Deity, and enjoyed the torments of the victims which were delivered up at once to the executioner, and the maledictions of the people; the particulars of theſe barbarous rejoicings as well were related in books written expreſsly to deſcribe the part taken in them, and the pleaſure received from them by the ſpectator.

After the *auto de fé* in 1680, a work was publiſhed, giving the moſt circumſtantial relation of that terrible ſolemnity. The author ſeems to have taken as much pleaſure as if he were deſcribing a public feſtivity. "I am about," he ſays, "to relate, with an intereſting exactneſs, all the circumſtances of that triumph ſo glorious to the faith, with a liſt of the nobility preſent, and a ſummary of the ſentences paſſed upon the criminals."

The cenſors afterwards approve, in the moſt diſtinguiſhed mannner, a work which, ſay they, "for the majeſty of its ſubject ought not only to be read in Spain, but by the whole world."

The examiner ſurpaſſes the cenſors. "The author," ſays he, "has anſwered the public expectation at a time that curioſity made it the object of every wiſh, and the pious impatience of all true believers complained of delay." He is above all eulogium for "having given, with a ſcrupulous attention, all the particulars of this wonderful ceremony."

In the courſe of his narrative, the author frequently celebrates the pious zeal of the monarch, who was himſelf preſent at the ceremony.

"This prince," ſays he, "having given it to be underſtood that he ſhould be *glad* to be preſent at the celebration of an auto-general, the council of the Inquiſition thought it would be ſhewing him a mark of reſpect to afford him an opportunity to imitate the admirable example of his auguſt father Philip IV." The grand inquiſitor went in conſequence to kiſs His Majeſty's hand, "aſſuring him that he would take the moſt ſpeedy meaſures for the accompliſhment of a work which was *ſo agreeable to him.*"

"It was a great conſolation," ſays he, "to the zealous, a ſubject of confuſion to thoſe of a lukewarm zeal, and of aſtoniſhment for all the ſpectators, to witneſs a conſtancy worthy of being admired for ages to come. From eight o'clock in the morning His Majeſty remained in his balcony, without manifeſting the leaſt uneaſineſs from the heat, or the prodigious concourſe of people, or appearing wearied by ſo long a ceremony. His zeal and devotion were ſo ſuperior to the fatigue, that he did not even withdraw for a quarter of an hour to taſte refreſhment; and at the end of the ceremony he aſked if there were any thing elſe to be done, and if he might retire."

The Spaniards of the preſent age are far from that cool cruelty which ſhuts the heart againſt pity; and are at liberty to compaſſionate the very ſmall number of unhappy victims who ſuffer the ſeverity of the Holy Office.

They have indeed been very rare in the preſent century, for there has not been one general *auto de fé* ſimilar to that of 1680.

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In 1714, ſome monks, whoſe monaſtery was in the neighbourhood of a convent of nuns, were convicted of having abuſed the aſcendancy they had gained over their minds, by making them guilty of diſorders which they concealed under the veil of religion. The Holy Office condemned to death thoſe who were moſt culpable, and, according to cuſtom, delivered them over to the ſecular power.

Eleven years after, the Inquiſition exerciſed another act of ſeverity, which I will not undertake equally to juſtify. A family of Moors was diſcovered at Granada, peaceably employed in the manufacture of ſilk, in which it excelled. The ancient laws, ſuppoſed to have become obſolete, were for this time renewed with all their rigour, and the unhappy Moors were burnt alive.

In 1756, ſeven perſons from among the lower claſs of people were taken from the priſons of Madrid to hear their ſentences pronounced. One of them, a ſchoolmaſter, who had been falſely accuſed, was acquitted. The three falſe witneſſes who had depoſed againſt him, one of whom was his wife, were baniſhed for eight years, and condemned to receive two hundred laſhes, which were never inflicted. Another culprit really received the laſhes, and was the only perſon then corporally puniſhed, becauſe, as the ſentence declared, he was *heretic*, *apoſtate*, inclined to *Judaiſm*, *and unſettled in his faith*. The only crime of one of the ſeven, who was from Toloufe, conſiſted in his being a *Free-Maſon*; his ſentence was perpetual baniſhment, and the confiſcation of his property.

Theſe diviſions wore the appearance of ignorance rather than cruelty; but in 1763; a particular *auto de fé* was celebrated at Llerena, when ſome heretics were delivered to to the flames. The obſcurity of theſe victims prevented their puniſhment from becoming generally public; and the univerſal terror which the name alone of the Inquiſition inſpired, ſeemed to be leſs prevalent. The King, the year before, had reſtrained the powers of this tribunal. The grand inquiſitor having, againſt the expreſs will of His Majeſty, publiſhed a bull which proſcribed a French book, was exiled to a convent thirteen leagues from Madrid. Whilſt in exile he endeavoured to excuſe himſelf by alledging the immemorial uſage, which gave to the Holy Office the excluſive right of prohibiting dangerous books. At the end of a few weeks he obtained his pardon; but the King, after having taken the advice of his miniſters and the council of Caſtile, iſſued an ordinance, which ſtated:

1. That for the future the grand inquiſitor ſhould not be allowed to publiſh edicts, except when they were ſent to him from His Majeſty.

2. That when he ſhould receive briefs, by which books were to be prohibited, he ſhould conform to the laws of the country, and publiſh the prohibition, not ſupporting himſelf by the brief, but by his own authority.

Finally, That the Holy Office ſhould, before it condemned a book, ſummon the author before the tribunal, to hear what he might have to ſay in his defence.

This little triumph of reaſon and ſovereign authority promiſed to be but ſhort. The year following, the influence of the King's confeſſor produced a revocation of the edict; but the Count de Aranda managed ſo as to revive the order of 1762, by gaining over a mixed aſſembly of magiſtrates and biſhops who had been created on the occaſion of the expulſion of the Jeſuits. This was not the only effort of that wiſe miniſter, to circumſcribe the power of the Holy Office; he had long meditated the depriving it of the right to ſeize the property of the criminals it condemned: but it was objected, that it furniſhed a part of the ſalaries of the officers of the tribunal; and that to ſupply the failure of this property, it would be neceſſary to create a fund of upwards of ſix hundred thouſand livres (25,000l.).

(25,000l.). This conſideration ſuſpended the revocation which was ready to be pronounced.

The count ſucceeded better in another attempt. Being preſident of the council of Caſtile, which has always been the zealous defender of the rights of ſovereignty, and gaining over, by the aſcendency of his character and talents, ſome powerful prelates, whoſe ſecret diſlike to a tribunal, enriched by epiſcopal ſpoils, he took every means to increaſe; he obtained in 1770 a royal mandate which confined the juriſdiction of the Inquiſition to the cognizance of the crimes of hereſy and apoſtacy, and forbade it to *impriſon the ſubjects* of His Majeſty, unleſs theſe crimes were firſt clearly proved.

This went to contract its limits greatly. The victory which he thus obtained was obnoxious in Spain to a very ſmall number of weak and fanatic people. It was highly celebrated and exaggerated in foreign countries. The moment was ſuppoſed to be at hand when the hydra, which philoſophy had long before condemned, was about to be deſtroyed.

The reſignation of the Count de Aranda, which happened ſoon after, did not prevent ſimilar meaſures from being purſued, becauſe diſtinguiſhed and enlightened perſons were ſtill at the head of adminiſtration, who, notwithſtanding their zeal for religion, had imbibed the ſame principles. Security was re-eſtabliſhed in the minds of men without baniſhing the reſpect due to religion and its miniſters. This was inſured by the goodneſs and moderation of the monarch, and the tolerating maxims of thoſe in whom he principally confided. The time of rigour and cruelty ſeemed to be paſſed, and the Holy Office appeared to ſlumber, when in 1777 it ſuddenly ſhook off its ſupineneſs at the expence of an illuſtrious victim, and terror and falſe zeal were again roufed through all Spain; while throughout the reſt of Europe the indignation of every rational friend to the bleſſings of a wiſe toleration was again excited.

Don Pablo Olavidé, born in Peru, had been raiſed by his diſtinguiſhed abilities to one of the firſt employments in the ſtate, that of intendant of the four kingdoms of Andaluſia and *Aſſiſtente* of Seville. His ſage meaſures in this important poſt had excited admiration and gratitude, when new opportunities preſented themſelves to ſignalize his zeal. The King had conceived the project of clearing and populating that part of the Sierra Morena which is croſſed by the road from Madrid to Cadiz, a diſtrict formerly inhabited and cultivated, but lately overgrown with wood, and become a retreat for robbers and wild beaſts. M. Olavidé was appointed to carry this plan into effect, and acquitted himſelf of his commiſſion in the moſt diſtinguiſhed manner; he however could not avoid the ordinary rock of all great enterpriſes. He made himſelf enemies; and drew upon him the hatred of Father Romuald, a German capuchin, who had brought into the Sierra Morena a patent from the general of his order, by which he was declared prefect of all new miſſions, and by which he arrogated to himſelf an unlimited authority in every thing which could be made to have the leaſt connexion with religion. He was oppoſed by M. Olavidé, who otherwiſe gave him a good reception, and received him into his intimacy. The diſappointed ambition of the monk became furious. Some indiſcreet expreſſions from M. Olavidé, in an unguarded moment, ſupplied him with an opportunity to gratify his revenge. He fomented the diſcontents of ſome of the ſettlers who were his own countrymen, and made uſe of them to diſcredit the new eſtabliſhment and its principal conductor. The memorials which he preſented to the council of Caſtile were full of the moſt ſerious charges againſt M. Olavidé. The council cauſed them to be examined by an impartial judge, and M. Olavidé was ſud-

denly ordered to court in the month of November 1775, there to confer concerning different objects relative to his miſſion.

Whilſt he reſided tranquilly at Madrid, he diſcovered by accident the treacherous conſpiracy intended for his deſtruction. He learned from intercepted letters that Father Romuald had planned his ruin, to enrich himſelf with his ſpoils, and that he was not without a hope that the court itſelf would favour his deteſtable plot.

M. Olavidé was further informed by ſome friends whom he ſtill had in the Sierra Morena, that the preceding year the vindictive monk had accuſed him to the miniſter of foreign affairs, of being wanting in reſpect to divine worſhip and eccleſiaſtical diſcipline in the new colonies, and of having in his poſſeſſion prohibited books; and alſo that he had but a ſhort time before accuſed him to the Holy Office.

However alarming this information might be, M. Olavidé confided in the rectitude of his own conſcience. He ſolicited the miniſters to convey to the foot of the throne the proofs of his innocence. He went to the grand inquiſitor proteſting the purity of his faith, and offered to retract the expreſſions which might have eſcaped him to the prejudice of religion. For more than a year that he had reſided at Madrid, his conduct was of a moſt exemplary nature; but nothing could avert the ſtorm which threatened him.

The 14th of November 1776, a grandee of Spain, in quality of *Alguaſil Mayor* of the Inquiſition, accompanied by ſome officers of juſtice, arreſted him in his houſe, and conveyed him to the priſon of the Holy Office.

At the ſame time his wife, who was at Carolina, where ſhe had remained during the abſence of her huſband, ſaw the officers of the Inquiſition arrive and ſeize all his property, books, and papers; whilſt another detachment did the ſame at his houſe in Seville. Until the day his ſentence was pronounced he was loſt to his family, who knew not whether he was dead or alive, and had given over all hopes of ever ſeeing him more.

I arrived in Spain for the firſt time when this event was quite recent, and was witneſs to the ſenſations which theſe proceedings occaſioned in the minds of different men. The rivals of M. Olavidé, the invidious, and ſome devotees, conſtant in their zeal for the cauſe of religion, conſidered it as a triumph. Several of his more rigid countrymen thought it a juſt chaſtiſement for the imprudencies attributed to him; and which might have had other judges elſewhere, but would not have eſcaped unpuniſhed. Conſternation was however the moſt general ſentiment. Each began to tremble for himſelf, fearing leſt he ſhould find in his moſt intimate connexions both ſpies and accuſers. How were it afterwards poſſible to enjoy the ſweet communications of confidence and friendſhip? What man could be prudent enough and ſufficiently ſure of himſelf to concert all his actions, weigh his expreſſions, and never furniſh matter of accuſation for a ſecret enemy, a corrupted ſervant, a friend, or even a ſon led aſtray by his ſcruples? The Holy Office is perhaps more juſt than ſevere; but its proceeding is dreadful! How can an accuſed perſon diſculpate himſelf when he neither knows his crime nor accuſers? And how is it poſſible to avert the thunderbolt prepared in ſilence in the ſhades of its impenetrable maze?

Such were the reaſonings dictated by terror during the impriſonment of M. Olavidé. The apparent ſupineneſs of the Inquiſition had re-eſtabliſhed ſecurity, but its ſudden revival terrified every one. The firſt impreſſion was beſides rendered more laſting by other circumſtances. The monks thought the time at hand to regain their loſt power. Scarcely was M. Olavidé arreſted before it was known that a miſſion of capuchins at Seville had abandoned themſelves to an exceſs of zeal, and loudly exclaimed againſt profane

profane theatres to which he had given encouragement in that city. At the ſame time the Inquiſitions of the provinces partook of the triumph of the capital, and made an eſſay of their returning power. The inquiſition of Cadiz renewed a ceremony which had been neglected there for half a century, and which is annually repeated at Madrid, that of ſolemnly reading all the decrees of the Holy Office, the bulls upon which its power is founded, and all the anathemas fulminated againſt hereſy and irreligion. It ſeemed as if the Holy Office wiſhed to make a mockery of the alarm of the public.

In the mean time the proſecution of M. Olavidé was carried on with the utmoſt ſecreſy. His fate was at length decided after a rigorous impriſonment of a year and ſeven days, during which he had not the conſolation of having even one of his ſervants ſuffered to approach him.

On the 21ſt of November 1778, an aſſembly was held in the hall of the Inquiſition, to which forty perſons of different orders were invited, among whom were ſeveral grandees of Spain, general officers, prieſts, and monks.

The criminal appeared cloathed in yellow, carrying in his hand a green taper, and accompanied by two miniſters of the Holy Office. All the proceedings were read. The moſt intereſting part was the circumſtantial relation he himſelf had given in of his whole life. In this he confeſſed that in his travels he had frequented the ſociety of free-thinkers, namely, Voltaire and Rouſſeau; that he had returned to Spain with many prejudices againſt the clergy, and perſuaded that the privileges and opinions of the church of Rome were repugnant to the proſperity of ſtates; that ſince he had been placed over the colonies of Sierra Morena, he had openly, and without reflection, avowed his opinion concerning the obſtacles which retarded their progreſs, the infallibility of the pope, and the tribunal of the Inquiſition.

Afterward were produced the depoſitions of ſeventy-eight witneſſes, who accuſed him of having frequently ſpoken the language of free-thinkers, and ridiculed the prieſts. To ſeveral of the charges made againſt him he pleaded guilty, and denied others, aſſerting that in all theſe caſes his words had never expreſſed his true ſentiments; that his object had ſometimes only been to animate the induſtry of the ſettlers confided to his care, among whom the exterior practices of religion were frequently nothing more than pretexts for idleneſs; and that when he declaimed againſt the ill conſequences of celibacy, his view had merely been to encourage population, ſo neceſſary to the proſperity of his country.

This defence appeared neither reſpectful nor ſatisfactory. It was alledged againſt him as a crime, that he had uſed every means of eluding the juſtice of the Holy Office; had intercepted letters to engage the witneſſes brought againſt him to retract; and theſe circumſtances were all proved by writings under his own hand.

In ſhort, the tribunal adjudged him atainted and convicted of every charge made againſt him; and, in conſequence pronounced his ſentence, which declared him *formally an hēretic.* He interrupted the reading, by denying that he deſerved ſo harſh an appellation. This was, during the final and terrible ſitting, the laſt effort of his firmneſs. He fainted on the bench on which he ſat, and as ſoon as he recovered himſelf, the reading of the ſentence was continued. It confiſcated all his property, declared him incapable of holding any employment, exiled him to twenty leagues from Madrid, from every place of royal reſidence, from Seville, the theatre of his fallen authority, and from Lima his country; it condemned him to be ſhut up eight years in a monaſtery, where he was to peruſe ſuch works of piety as ſhould be put into his hands, and go to confeſſion once a month. He afterwards made his ſolemn abjuration, and, with all the ceremony preſcribed by the canons, was abſolved from the cenſures he had incurred.

Thoſe who were preſent, it will readily be conceived all orthodox, declared that he ſhewed the moſt unequivocal marks of reſignation and repentance, and that it was impoſſible to refuſe him their compaſſion.

It has been aſſerted that the perſonal clemency of the monarch, and that of even the grand inquiſitor mitigated the rigour of his ſentence; that ſome of his judges were of opinion he ought to ſuffer death, and ſeveral a public puniſhment; one of theſe rigourous ſentences was ſupported by the King's confeſſor, whoſe fanatical zeal for the cauſe of God, made him believe the ſcandal could not be repaired but by a public example.

It was however difficult to learn the reſt of the ſecret particulars of this affair. Curioſity and indiſcretion were reſtrained by fear. A conjecture, a queſtion, might be miſinterpreted and embitter the life of the author. People were in a ſituation ſomething like that deſcribed by Tacitus, in the life of Agricola: *Adempto per inquiſitiones et loquendi audiendique commercio* *; or that of a more modern and ſtill more dreadful period.

It muſt however be obſerved in favour of the Spaniſh government, that this criſis did not continue long. The mind became more eaſy by reflecting upon the known benignity of the diſpoſition of Charles III., and the enlightened character of his miniſter, who was adverſe to fanaticiſm.

Even the ſituation of the victim contributed to diſſipate public terror. His talents and good fortune had excited the notice of envy before he had incurred that of the Holy Office; and citizens, ſomewhat calmed, truſted to their obſcurity for ſhielding them from the rigour of this tribunal. The reſult ſhewed that is was but tranſitory, and that the privy councils of the King were governed by milder maxims.

M. Olavidé was ſcarcely confined in a convent of La Mancha, before, complaining of the ill ſtate of his health, he obtained permiſſion to go and drink the mineral waters in the neighbourhood; and afterwards the liberty to go to others in Catalonia, which he hoped would prove more efficacious. There near the frontiers he eaſily deceived the vigilance of his keepers, and bidding adieu to his country, which ſtill was dear to him, eſcaped to France, where he was preceded by his reputation, and received as a martyr to intolerance. Some months after his flight the court of Spain reclaimed him, but that of France replied in a friendly manner, that the offences of M. Olivadé, however heinous they might appear in Spain, did not come within the deſcription of thoſe, the authors of which civilized ſtates had reciprocally agreed to give up; and the court of Madrid inſiſted no farther.

Ten years after his evaſion, the French revolution which he had predicted, and, no doubt, deſired, taking place, towards the end of his career, preſented him with a ſpectacle of a novel deſcription. He heard the rumbling of the thunder about him, and had, at a time, ſome apprehenſion from the ſtorm. He underwent the dreadful horrors of ſuſpenſe in the memorable reign of *terror*, and learned what fifteen years before had never entered his mind, that there was under heaven ſomewhat even more terrible than the Inquiſition. Since then he has retired to a country-ſeat near the Loier. In this ſpot his buſy brain has attained a calm, without his heart being chilled. A religion, better underſtood than that of which he was about to die the victim, offers him its conſolation, literature its reſources, and ſolitude its ſweets; ſo that by a ſtrange concatenation of circumſtances, the Inquiſition for once, doubtleſs the firſt time, has made one wiſe and happy man †.

Since

* Spies put an end to the uſe of the faculty of hearing and ſpeech.

† When I wrote this in 1797, M. Olivadé little thought of reviſiting that country which had proſcribed and puniſhed him, and from which he had eſcaped as a fugitive: but age, misfortune, and attention to the conduct

Since this event the Inquiſition has, in one caſe, juſtified the apprehenſions it excited. Toleration, or, which is the ſame thing, humanity, ſhuddered at the torments inflicted upon a poor woman, who, having been *convicted of ſorcery and witchcraft*, was burned at Seville in 1780, in conſequence of the ſentence of that tribunal.

Except in theſe inſtances, its authority has been exerciſed only on ſome individuals, who, having uſed irreligious expreſſions, have been pardoned upon retraction, after undergoing a trifling penance.

I was at Madrid in 1784, when a circumſtance happened which proves that this tribunal, notwithſtanding the terror its forms have ever inſpired, is ſometimes leſs ſevere than many ſecular courts of juſtice.

A beggar, who generally took his ſtand at the door of a church, had employed his leiſure in inventing and ſelling a ſpecies of powder to which he attributed miraculous effects. It was compoſed of ingredients, the mention of which would make the reader bluſh. The beggar had drawn up ſome ſingular formularies to be repeated at the time of taking the powder; and required, to give it its effect, that thoſe who took it ſhould put themſelves into certain poſtures more eaſily imagined than deſcribed. His compoſition was one of thoſe amorous philtries, in which our ignorant anceſtors had ſo much faith; his, he pretended, had the power of reſtoring a diſguſted lover, and of ſoftening the heart of a cruel fair one.

Whatever flatters our paſſions has ſome claim to our credulity. The impoſtor wanted not for cuſtomers in that claſs over which the marvellous has ſo much empire; and a few accidental ſucceſſes gave reputation to his noſtrum. He aſſociated himſelf with ſome women who diſtributed it. His powders, however, as it will eaſily be believed, were often employed without effect. Moſt of the perſons whom he deceived, leſs irritated than aſhamed, kept profound ſilence; but, at length, others made complaints which were ſoon carried to the Holy Office. The beggar was arreſted, and led with his accomplices to the Inquiſition, where they were proſecuted in form.

The impudent empiric avowed every thing; he explained the compoſition of his powder, and gave up his receipt and formularies. The reſult was one of the moſt ſingular proceedings which ever came before a tribunal. The day of vengeance arrived. The judges, criminals, and a crowd of ſpectators of both ſexes aſſembled in the church of the Dominican nuns at Madrid. Divine ſervice was begun, but afterwards interrupted to read the ſtrange proceedings. The temple of the Moſt High was not ſuppoſed to be profaned by a recital of the obſcenities contained in the ſummary. Such were the laws of the Holy Office, nor were theſe diſpenſed with in the leaſt in favour of ſome women of quality, who hid their confuſion behind their fans. Even the nuns, leſs attached to their ſcruples than to the privileges of their church, loſt no part of the ceremony, and their modeſt ears were inſulted with the ſhameful relation. The ſentence was pronounced, and executed after maſs was over.

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conduct of others, brought him back a convert to that religion he was charged with contemning. Not only did he frankly profeſs Chriſtianity, he employed his leiſure in compoſing an apology in a long work which he publiſhed, and which being known in Spain, cauſed the ſincerity of his converſion to be no longer diſputed. He met with advocates about the throne, and what was more difficult, even in the formidable tribunal, the author of his perſecutions; which for once recalled to mind that the Divine Legiſlator, whoſe vengeance they ſtate themſelves called upon to execute, *deſireth not the death of the ſinner, but rather that he turn from his wickedneſs and live.* M Olavidé obtained permiſſion to return to Spain, and arrived in Madrid in 1798. Ambition has now loſt all empire over his ſoul, as well as all reſentment; he ſhortly after withdrew to Andaluſia, to the houſe of a female relation, the object of his earlieſt affection, perhaps the only one who ſurvived his long baniſhment.

The beggar was declared attainted and convicted of malpractice, profanation, and impoſture, and condemned to perpetual impriſonment, after having been whipped in the principal quarters of the city. Two women, his accomplices, were treated with more indulgence.

The three criminals ſoon left the church; they were mounted upon aſſes, and each clothed in a *ſambenito*, covered with painted devils and other ſymbolical figures. They wore on their heads the fatal pyramidal bonnet called *coroza*. The man was naked down to his waiſt, and expoſed to the eyes of the public a plumpneſs which could be attributed to nothing but the lucrative and extenſive ſale of his powders.

The proceſſion was headed by the Marquis of Cogolludo, the eldeſt ſon of the Duke of Medina Celi, who, in quality of Alguaſil Mayor, preſided at the ceremony. He was followed by ſeveral grandees of Spain, aſſociates of the Holy Office, and other officers of the tribunal. The windows were filled, and the ſtreets thronged with curious ſpectators. The triumphant entry of a hero, returning to his country after having ſaved it, could not have been more pompous than the ceremony of which a vile criminal was the object; and this ſpectacle by which curioſity was ſo much excited, unlike to others of the ſame kind, offered nothing which might wound ſenſibility. Never was a ſentence ſo well deſerved executed with greater mildneſs. The criminal ſtopped from time to time, and ſcarcely did the executioner touch his ſhoulders with the whip, when ſome charitable hand preſented him with a glaſs of Spaniſh wine to enable him to finiſh his career. It were to be wiſhed that the Holy Office had never exerciſed greater ſeverity.

In fact, this tribunal (I averred it in 1789, and repeat it in 1803,) is far from being ſo dreadful as in other countries it is generally believed; I ſhall not become its apologiſt by ſtating that our *lettres de cachet* were formerly equally revolting; neither ſhall I excuſe it, by ſtating, that in the eye of philoſophy in that nation which paſſed for the moſt enlightened and humane, for eighteen months together we have witneſſed the moſt ſhocking repreſentation of judicial iniquity that ever ſtained the page of hiſtory. It is not by citing ſuperior atrocities that the ſmaller can be mitigated, I ſhall therefore own that the forms of the Inquiſition are terrifying, even to thoſe who are perſuaded of its equity. Proſecutions are carried on with the greateſt ſecrecy; the advocate granted to criminals to make their defence cannot ſpeak to or ſee them but in the preſence of the inquiſitors. But the moſt odious proceeding of all is, that when the depoſitions received againſt any perſon accuſed are communicated to him, the names of the accuſers are carefully concealed. If the Holy Office were to proſecute criminals publicly, and name and confront their accuſers; were it to allow them every means of proving their innocence, would its laws be leſs obſerved, or would the ſacred intereſts committed to its care be leſs attended to? Let it not be ſaid, that moſt informers would be reſtrained by a falſe ſhame by the fear of expoſing themſelves to the indignation of the public and the reſentment of the accuſed. No, ſurely the Holy Office dare not avow an apprehenſion leſt its victims ſhould be fewer! Is that God which it worſhips ſo thirſty of human blood, ſo covetous of guilty perſons and victims? If this were his religion, never was a more dreadful preſent to mortality.

I am willing to allow to thoſe who conſider this as the only true religion, that its pure doctrine, and a reſpect for the worſhip of its followers, are conducive to public happineſs and tranquillity; and that ſuch as preſume to make violent attacks upon either are deſerving of being reſtrained, and even puniſhed. — But gratitude towards benefactors, fidelity of ſervants to their maſters, charitable indulgence towards our fellow-creatures; is the exerciſe of theſe virtues, inquiſitors, leſs acceptable in the ſight of Omnipotence than

than orthodoxy? and would the cauſe of the Almighty ſuffer from motives powerful as theſe preventing accuſations?

Beſides how do other tribunals find means of detecting the guilty? The public body whoſe duty it is to proſecute offences, is it inſufficient to diſcover thoſe whoſe apprehenſion is neceſſary for the ſake of ſociety or religion; and is it common for crimes againſt either of theſe to eſcape the ſword of juſtice?

And as for ſuch as might eſcape without the concealment of the witneſs whoſe indignation they may have incurred, does not the publiſhing of their tranſactions or language occaſion more real injury to religion than what their being left unpuniſhed could poſſibly do? And when the God you worſhip (I was about to ſay that you traduce,) curſed "the man who firſt invented ſcandal," did he not intend to include the publiſher of ſcandal?

Thus in caſe of my having to appear before the Holy Office, thus ſhould I addreſs myſelf to it. But I would acknowledge at the ſame time, with no expectation of diſarming it, but merely with a view of doing homage to truth, that the Inquiſition, if its forms were overlooked, and the object of its inſtitution, might be cited as a model of equity. Let it not be ſaid that the malice of a ſecret enemy is ſufficient to call down its vengeance; it condemns no one upon the teſtimony of one accuſer, nor without diſcuſſing the proofs of the charges. Serious and repeated crimes are neceſſary to incur its cenſures; which, with a little circumſpection in words and conduct relative to religion, may be avoided, and men live as little moleſted in Spain, as in any other country in Europe.

I will ſay more, during my laſt ſtay in Spain, which was for the ſpace of more than a year; I do not remember to have once heard the name of the Holy office, nor was I able to obtain one other ſingle anecdote to add to the horror to which I had devoted it, notwithſtanding the apologetical manner with which I was reproached with having ſpoken of it. Not that at the time I ſpeak of (1792 and 1793) it had become leſs rigid; but more immediate objects, more imminent dangers, the conſequence of the progreſs of our revolutionary principles, called for and ſeemed to abſorb all the faculties of the Spaniſh government. Perſecution was leſs extended towards the atheiſtical French, than the French imbued with maxims formidable to deſpotiſm, and too much inclined to the propagation of them. The Alcaldes, the Corregidors, the commandants of towns, the governors of provinces, all had become political inquiſitors more vigilant and far more formidable than the reverend fathers; ſo that the latter relying upon the active zeal of their ſubſtitutes ſeem to hold vacation for a period of time.

It was conſequently in my firſt journey into Spain that I acquired the greater part of the materials from which I have attempted a draught of the Inquiſition.

I muſt add to what I have before obſerved, that, of all ſtrangers, the French have been conſtantly the principal objects of its reſtleſs vigilance.

The troubleſome zeal of many of its commiſſaries in the provinces, occaſions them to be perſecuted for the ſlighteſt matter, frequently diſturbing the quiet of the inhabitants, by domiciliary viſits for the purpoſe of ſeizing licentious prints, or prohibited books; oftentimes it is true this exceſs of zeal is condemned by the court, or the grand inquiſitor, which office, during the laſt and the preſent reign, has been uniformly occupied by prelates of ſenſe and moderation. I have ſeen ſome ſpecimens thereof, one of the moſt ſtriking of which is the following.

About fifteen years ago, ſome French merchants at Cadiz, having received a conſignment of leather from one of our manufactories, were much alarmed at ſeeing the officers of the Inquiſition enter their houſes. They deſired to ſee the leather newly ar-

rived and having obſerved that it bore the image of the holy virgin, which was the mark of the manufacture, exclaimed againſt the profanation; remarking that the leather being intended to make ſhoes, the image of the Mother of Chriſt ran the hazard of being trodden under foot, and conſequently it was confiſcated. The affair was referred to the ſupreme tribunal at Madrid. The charge was made out and was for ſome time in my poſſeſſion, for the merchants, much alarmed, had recourſe to the court by means of their ambaſſador. The court and the tribunal received the complaint in the manner it merited. The officers of the Inquiſition were enjoined not to moleſt ſtrangers under ſuch trifling pretexts, and the merchants recovered their leather without further trouble.

On other occaſions, ſtill more recent, the miniſter and the grand inquiſitor himſelf, have protected the inhabitants againſt the cavils of the ſubalterns of the Holy Office. At Barcelona they attempted to give diſturbance to a French houſe, becauſe its members were Proteſtants; and when it was obſerved to them that the Engliſh and other northern nations were tolerated in Spain, notwithſtanding they were heretics, they anſwered, that the Catholic religion was the only one in France. The cauſe, however, of this perſecuted houſe was no ſooner brought before the court than it was gained.

In fine, though it muſt be admitted that bigotry is more prevalent in the provinces than in the capital, no great inconveniences can ever ariſe from it; becauſe the ſentences of the provincial tribunals have no force until they have obtained the ſanction of that of Madrid, which, on that account, bears the name of *Suprema*. Beſides, the court ſcrutinizes more ſtrictly than ever the proceedings of the Holy Office, and certainly not with an intention of increaſing its ſeverity. It was enacted, in 1784, that when the office ſhould have finiſhed the proſecution of any grandee of Spain, any of His Majeſty's miniſters, any officers in the army, member of a tribunal, or any perſon in place, the whole proceedings ſhould be laid before the King to be reviſed and examined. By this law the principal perſons in the kingdom have obtained an additional ſecurity againſt the arbitrary rigours of the Holy Office. It is to be regretted, that it was calculated to defend thoſe who cannot want protection rather than thoſe whoſe obſcurity frequently renders their complaints ineffectual, and who conſequently are expoſed to be unjuſtly treated with more impunity. But where they have no part in framing the laws the people are almoſt every where either forgotten or oppreſſed.

The Holy Office to this day receives a certain tax from each veſſel that arrives in any of the ports of Spain, in conſequence of the examination it is authorized to make in order to ſee that the veſſel contains nothing that may be offenſive to religion. The ſearch has for a long time been neglected, but the duty is ſtill paid to the office. Were this the only complaint againſt the Inquiſition, we ſhould eaſily be reconciled to it.

In 1789 I concluded this long article on the Inquiſition with a hearty deſire that the ſovereigns of Spain might conſider themſelves ſufficiently ſure of the ſubmiſſion of their ſubjects, of the watchfulneſs of their temporal courts, and of the enlightened zeal of its prelates, to make this tribunal wholly unneceſſary. I am however apprehenſive that after what has happened latterly in Europe, the object of my deſire is wider of its completion than ever. I fear that ſovereigns, however wiſe they may be, from a jealouſy of a diminution of their authority, will foſter more than ever ſuch ſupports to their empire (ſhaken by the violent convulſions which have happened) as may yet remain; and that they will gain an additional argument in favour of inſtitutions which tend to prevent the diſorders of irreligion from the exceſſes of the looſe philoſophy which in France has exceeded all bounds. There appear more than one ground for this opinion. Since the eſtabliſhment of peace between Spain and France prieſts have again acquired

their

their priſtine aſcendancy, the profeſſorſhips of public right have been aboliſhed, and the works of Macanay on the Inquiſition have been reprinted. Whether to preſerve quiet it be advantageous to muzzle and hoodwink a generous nation—whether it be a ſafer way to conduct it through the paths of darkneſs than by affording the uſe of the light of reaſon—whether in ſhort, to uſe the language of deſpotiſm, a moderate government be not the moſt proper one for protecting the governed from the exploſions of liberty, time muſt diſcover.

Before I quit the ſubject I ſhall take notice of a political body, which many ſtrangers confound with the Inquiſition, but which has no other relation with it than their common epithet.

This is the *ſanta hermandad*, much ſpoken of in Spaniſh novels; it is no more than a confraternity, diſperſed over different parts of the kingdom of Caſtile, whoſe object is to watch over the ſafety of the country by apprehending thoſe who diſturb the public peace. It is ſubordinate to the council of Caſtile, from which it receives its regulations. One of the ſtricteſt is that which prevents its juriſdiction from extending to cities. The principal detachments from it are at Toledo, Ciudad Rodrigo, and Talavera.

Let us reſume what remains to be ſaid reſpecting the interior adminiſtration of Spain. We began with the council of Caſtile which lead us to the adminiſtration of juſtice, to legiſlation, and finally to the tribunal of the holy office. In the ſucceeding volume we ſhall take a view of the other different councils of the monarchy.

VOLUME THE SECOND.

CHAP. I.—*Council of finance of Spain.—Taxes.*

WE are now about to enter the vaſt career of finance, revenue, impoſts, debts of the ſtate, public debt, &c.—tireſome career, which frequently exhauſts the patience of the miniſter who has to levy the taxes, and more frequently that of the perſons who have to pay them; a barren ſubject, which poſſibly may weary many of my readers, on which account I ſhall be as ſhort as exactitude will allow.

The finance department in Spain is under the direction of a ſovereign permanent council, called *El conſejo de Hacienda.*

This *Real Hacienda*, the name of which inſpires a ſort of terror, does not badly reſemble the cave of the lion deſcribed by La Fontaine:

> ———Towards this cave
> I trace full many a footſtep go, but none
> Of beaſt returning.

The ſupreme guardian of the *Real Hacienda*, the council of finance, is as well as that of Caſtile divided into ſeveral chambers, or *Salas*, *la ſala de govierno*, *ſala de juſticia*, *ſala de millones*, and *la ſala de la unica contribucion.*

Their names ſufficiently indicate their functions.

The *contaduria mayor* is a ſort of chamber of accounts whoſe deciſions are ſanctioned by *la ſala de juſticia.*

It muſt not be confounded with *la contaduria de valores*, a particular office whoſe buſineſs it is to keep an account of the rental of the kingdom, of grants, and privileges.

Nothing can be more complicated than the forms which are to be gone through in paſſing the different offices before you attain the royal treaſury—forms which owe their origin as much to a ſalutary miſtruſt as to chicanery. Woe to creditor, woe to the ſolicitor who has to trace the windings of this labyrinth.

The royal treaſure is kept by two general treaſurers, who are alternately in office for a year, and paſs the year they are out of office in clearing their accounts.

Three general directors receive the royal rents, and have under them the collectors, and commiſſioners of duties, and their numerous fiſcal agents, a legion formidable for its number and its talents. There are none in their way in Europe ſuperior to theſe people; if they were as incorruptible as they are vigilant they might be taken for models. I had occaſion on my firſt journey to Spain to appreciate the value of this claſs of Spaniards; and on my return in 1792 I perceived to my coſt and that of a number of appellants of whom I was the organ, that it had yet made improvement towards fiſcal perfection. Events, augmenting the animoſity of the underlings of office towards the French, tended to ſharpen their intermeddling genius, which at times was at its *ne plus ultra*. Whenever deſirous of comforting myſelf for having no longer any relation with Spain, I have but to recollect its adminiſtrators of the cuſtoms, its judges of ſmuggled goods, and inſpect its whole tribe of tax-gatherers.

Let us examine how much arrives at this treaſury, ſo well defended againſt beſiegers, ſo frequently pillaged by its defenders; how much theſe revenues ſo harſhly collected amount to. Up to 1714 all the revenues, as well of the interior as of the cuſtoms, were farmed. At that epoch government took the collection into its own hands. Two years afterwards the taxes of the interior were farmed and continued ſo until 1742. The people ſuffered, as is the caſe where the taxes are farmed in every country. Repreſentations were made to Philip V., which ſtated all the irregularities in the collection. The repreſentation of 1734 may be found in the *Economia politica de Zabala;* and in the inſtitute of Don Martin de Loynaz, that of 1747. It is only neceſſary to read theſe to be convinced, that wherever there are men there will be abuſes, and to learn the leſſon of being ourſelves leſs affected at thoſe to which we are witneſſes or victims.

Campillo, however, who had paſſed through all the offices of adminiſtration, and who poſſeſſed firmneſs and extenſive knowledge, had frequently aſked the Spaniſh farmers-general what they gained by their farms; according to their own accounts, they were conſtantly looſers. Campillo, determining to learn the truth, ſuddenly put ſix of the twenty-two provinces, of which Caſtile is compoſed, into commiſſion. In 1747 the Marquis de la Enſenada extended this meaſure to the remainder, and ſince that time nearly all the collection of Spain has been managed by commiſſioners.

Two years afterwards Ferdinand VI. adopted a project which had often been agitated in Spain, that of converting into one contribution thoſe which form what are called provincial rents. In 1749, a commiſſion was eſtabliſhed for this purpoſe, under the name of *Sala de la Unica Contribucion.* It employs thirty thouſand perſons, and its annual expence is upwards of three millions of livres (125,000*l.*).

Until the operations of this chamber ſhall have anſwered the purpoſe for which ſo much care and money have been applied, the defective form of the chamber of finance will remain; the people ſuffer by it, and good citizens loudly complain; but the ſovereigns of the preſent family have not yet been able to find a remedy.

The finances of Spain are divided into two claſſes, which compoſe almoſt all the revenues of the King: *General Rents* and *Provincial Rents.*

The firſt ariſe from duties paid at the frontiers upon merchandize entering or going out of the kingdom. The duties are different with reſpect to their name and proportion

tion in different provinces. In thoſe where the Moors longeſt reſided, they have preſerved the Arabian name *Almojarifazgo*, firſt given to a cuſtom-houſe duty that has been ſucceſſively increaſed, and upon which the Spaniards have ſpeculated more or leſs advantageouſly with commercial nations. It is ſtill known by the ſame name in the Canary Iſlands, where it produces the King ſix per cent. upon all merchandize.

In moſt of the other provinces it has been increaſed by degrees to fifteen per cent. upon every article of importation or exportation. In Catalonia, they are not ſo much as four per cent. *ad valorem*.

Notwithſtanding its privileges in Navarre, a duty is paid of five per cent. upon every commodity entering its exterior frontier, and three and a half on exportation.

Hence it already appears, that the finances of France were not the only ones which were complicated, different in different places, full of exceptions, and expoſed to the caprice of collectors. What I have mentioned is but a ſlight ſketch of the complication of thoſe of Spain.

Beſides theſe general laws which extend to the greateſt part of merchandize, there are ſeveral articles, ſuch as cocoa, chocolate, ſugar and paper, which pay particular duties.

The whole produce of the general rents when they were farmed did not amount to ſix millions and a half of livres. A few years after they were put into commiſſion they produced ten millions, and have ſince rapidly increaſed.

In 1783, at the cloſe of the American war, they produced a total of ninety-ſix millions of rials; 1784, one hundred and twenty; 1785, one hundred and twenty-eight and upwards.

There are ſome other duties which may be included in the general rents, although differently collected, and their produce enter not the ſame cheſt; ſuch are

The duties of the *office of health*, firſt eſtabliſhed at Cadiz, and ſince extended to the other ſea ports of the kingdom.

The duties of the *grand admiral*, which were appropriated to the treaſury by Ferdinand V. in 1748.

Two other duties, one under the name of *Lanzas*, the other of *Medias Annatas*, which we have ſpoke of under the head of titles, and which collectively in 1787 produced 5,400,000 rials.

The *rent of wools*, which is the duty paid according to their quality on exportation. It was farmed at leſs than 12 millions of rials. In 1777 it produced more than 20 and in 1789 nearly 28 millions.

The produce from *the ſale of ſalt*, which is in *eſtanco*, that is, excluſively ſold for the King's account, throughout all his European dominions. This tax was for a long time very unproductive. In 1785 it ſcarcely yielded 16 millions of rials, but then the meaſure of from 60lb. to 80lb. weight was ſold for a rial (that is, 2¾d. ſterling,); but the price of the meaſure being raiſed, it produced in 1789 about 56,000,000 rials. It has been further productive, from the war having cauſed the price to be augmented. For, in Spain, to the injury of the country and to the misfortune of its inhabitants, objects of the firſt neceſſity are thoſe on which all taxes and augmentations are impoſed.

In other reſpects, the price of ſalt is uniform through Spain, with an exception of ſome drawback afforded in the ports for ſuch as is uſed for the fiſheries. The ſalt-pits of Andaluſia, and the dry ſalt-pits collectively, are inſufficient for the conſumption of the kingdom; great quantities are therefore brought from Portugal. Seizures and executions are rare in Spain with reſpect to ſalt; the avidity of the treaſury being leſs rigorous with reſpect to this article than others.

The *duty on tobacco* is a particular branch of revenue in Spain. It has been collected by commiſſioners ever ſince 1731, and has a particular adminiſtration. In 1785 there were but two ſorts of tobacco: viz, ſmoking tobacco from the Brazils, which Portugal, by virtue of a contract, delivered at 2 rials per lb. and which the King re-ſold at 40 rials; and tobacco pulverized, or ſnuff, known every where by the name of Havannah, or Spaniſh ſnuff, and which comes from Cuba. The King pays rather a higher price for this than for Brazil tobacco. In 1785 it was ſold at the ſame price of 40 rials per pound; from the ſum of the produce of the ſale the ſalaries of the perſons employed were to be deducted, and the expences of the manufactories, the principal of which is in Seville; all which charges increaſed the coſt to the King per lb. to 8 rials.

For a long time the government prohibited the uſe of all other kinds of ſnuff, called *rappee*, to diſtinguiſh it from the real Spaniſh ſnuff, which is powdered exceedingly fine, and coloured with a kind of ochre called *almazaron*, which gives it its tinge and unctuoſity.

In ſpite of, or rather on account of the rigorous laws, and the vigilance of the perſons employed, who on this occaſion take upon themſelves to behave in the moſt inſolent manner towards ſtrangers, particularly ſuch as arrive by ſea; Spain was inundated with ſmuggled tobacco; and the only perſons who gained by the prohibition were thoſe who ſold it underhandedly, charging even as high for it as a guinea per pound, in order to cover the riſk they ran in thus ſatisfying the decided taſte of men for what is forbidden. This taſte was participated by all claſſes of Spaniards, by thoſe eſpecially who ſhould have recommended abſtinence by their own example. The members of the diplomacy alone were exempt from the regulation, and even they required an expreſs permiſſion from the miniſter of finance, for allowing the entry of the quantity of rappee requiſite for their conſumption. The two predeceſſors of the reigning Sovereign had a ſettled objection to the uſe of this tobacco, which had ſomewhat of mania in it; and ſhould any about them have preſumed to take it, it would have been exceedingly difficult for them to eſcape diſgrace *.

At length, the Spaniſh government was convinced, that the only mode of curbing this addiction to ſmuggling, was to cauſe rappee ſnuff to be manufactured, and vend it for its own account. No nation had more advantages for this kind of ſpeculation than ſhe herſelf poſſeſſed: the cultivation of tobacco has ſucceeded in the greater part of her colonies; in Mexico, on the coaſt of Caraccas, at the iſle of Trinidad, and particularly in Louiſiana. As for Mexico, in which country the culture of tobacco was not begun before 1765, the King in 1778 drew from it four millions of hard piaſtres, and ſix millions in 1784. Galvez, the miniſter for India, intended the tobacco of Louiſiana, which is cheaper and better, ſhould furniſh the conſumption of Mexico, and by degrees the reſt of Spaniſh America.

The ſale of tobacco is one of the moſt conſiderable branches of the royal revenue. In 1776 it amounted to more than 87 millions of rials. In 1777 to 85 and upwards. In 1784 to about 73. The introduction of rappee ſnuff rapidly increaſed this receipt.

* Charles III. himſelf had a great predilection for rappee ſnuff, but only indulged his inclination by ſtealth, and particularly while ſhooting, when he imagined himſelf to be unnoticed. The following anecdote will ſerve to ſhew how much Ferdinand VI. in other reſpects humane and good natured, was looked upon as ſevere towards thoſe who infringed the laws relative to proſcribed tobacco. One day in his preſence, a grandee of Spain drew a ſnuff-box from his pocket full of rappee. The King caſt a threatening look upon him; when the French ambaſſador (M. de Duras) perceived it, and, advancing towards the Spaniſh nobleman, exclaimed, "*Oh! it is your Excellency who has my ſnuff-box, I could not think what had become of it.*" This fortunate expedient releaſed the delinquent from his embarraſſment, and diſperſed the anger of the King.

In 1787 it amounted to 129 millions, and ſince the laſt war it muſt have been much more. The King, in order to meet the current expences, having been obliged to augment the greater part of the indirect taxes, raiſed the price of rappee from 26 rials the pound to 42. Poſſibly this augmentation will long ſurvive its origin.

Many ſorts of rappee are manufactured in Spain, ſome of which are equal to the ſnuffs of other countries; this however does not hinder the latter from being ſought after with nearly as great avidity as before, having a double attraction, in being prohibited firſt, and ſecondly in being leſs dear.

There are alſo other articles in *eſtanco* beſides ſalt and tobacco. Theſe are lead, gunpowder, cards, Spaniſh wax, and ſtamped paper. Brandy and other ſpirituous liquors are not properly in *eſtanco*. The ſale of them has been free throughout the kingdom ſince 1746; but the following year the council propoſed to eſtabliſh a magazine for the King's account, and moſt people prefer purchaſing there becauſe the liquors are better and cheaper. Such a monopoly is commendable, and cannot fail of being admired.

I omit ſeveral other ſmall impoſitions, the detail of which would exceed the bounds preſcribed to my work.

But the moſt reprehenſible part of the taxes of Spain is the *provincial rents*: a ſpecies of impoſt which, chiefly falling upon the conſumption of the moſt neceſſary articles, burdens the people, and is one of the greateſt obſtacles to induſtry. For two ages and more the good citizen has exclaimed againſt this impoſt. Government is indeed convinced of its impropriety. The miniſter Campillo conceived the project of a total reform, but was diſmayed by the trouble and the danger it preſented. La Enſenada, one of his ſucceſſors, with greater power and more courage, went a little farther, but we have ſeen his *unica contribucion* is only yet a project. Unhappily the ſyſtem of Spaniſh finance depends on circumſtances which it would be neceſſary to change for its amelioration. Beſides which, the continual urgency of ſtate neceſſities has never permitted government to riſk the ſecurity of its revenues by experiments which might create confuſion, or the ſucceſs of which might be dubious. We have ſeen in France what it coſt M. Turgot and M. Neckar to plan a ſimilar reform. To produce it in Spain favourable opportunities are neceſſary, and a ſovereign and miniſters who ſhould not be alarmed at the clamours ever excited by innovations, or a French revolution would enſue. But it is not every country which is alike diſpoſed to provoke, nor equally ſuſceptible of bearing one; and if Spain be deſtined to experience this happineſs, or this ſcourge, it is not improbable that the cauſe will be its finances. Thoſe who are the greateſt ſufferers are too widely diſperſed, too ignorant, have too few means of communication, and are conſequently too eaſy to be kept in reſtraint, either by a military force or the clergy, for government to fear; and France has given a leſſon to ſovereigns which they will not fail to profit by, ſo as not to neglect the two ſupports in their poſſeſſion for upholding their authority, the ſword and the gown. The moſt moderate, the moſt beneficent will doubtleſs endeavour to render their yoke ſupportable. They will leſſen the burthen of taxes, will avoid giving cauſe of complaint to their ſubjects; but they will take eſpecial care not to invite them in a fatherly manner, to come and preſent their quires of ſufferings; and the States General of France have dealt a death-blow to the Cortes of Spain.

Until ſome circumſtances may operate a reform, the ſubjects of the Spaniſh monarch are expoſed to a moſt deſtructive ſyſtem of taxation.

The *provincial rents* are,

1ſt, The produce of a duty upon wine, oil, meat, vinegar, candles, &c. Philip II., overwhelmed by the weight of the ruinous enterpriſes to which he was impelled by his ambition, propoſed it to the Cortes in 1590, who conſented upon conditions, moſt of which

which have been violated. This grant, which has ſince been renewed every ſix years, and has had different augmentations, is called the *ſerviſio de los millones*, becauſe it was levied to raiſe a certain number of millions of ducats. This impoſt is collected in two modes, either immediately by the commiſſioners of finance, or by way of ſubſcription; nor *encabezamientos*.

The ſecond method has only the advantage of diminiſhing the number of perſons employed by the treaſury; but it is in reality more oppreſſive to the people. The contribution for which many cities, boroughs, and communities ſubſcribe is arbitrarily exacted by the magiſtracy of each, who eſtabliſh a public magazine or warehouſe, (*abaſto*,) where individuals are obliged to purchaſe *by rètail* the articles ſubject to the duty. The lower claſſes of people who cannot, like perſons in eaſy circumſtances, *lay in a ſtock*, feel all the weight of this odious policy. Their houſes are ſearched to ſee that they conſume nothing but what they purchaſe from the *abaſto*; hence ariſe oppreſſive proſecutions, which ſometimes to thoſe leaſt able to afford, cauſes their proportion to be double what it ſhould be towards the ſum the city or community to which they belong has ſubſcribed.

2dly, The *provincial rents* compriſe the *alcabale*, a duty paid upon the ſale of all moveables and immoveables.

This was firſt granted by the Cortes in 1342. It was then but a twentieth of the thing ſold. In 1349 it was increaſed to a tenth, and rendered perpetual. In the ſixteenth century it received four additions, each an hundredth part; whence it received the name of *cientos*.

Theſe two duties united, and collected together under the common denominations of *alcabale y cientos*, ought therefore, ſtrictly ſpeaking, to amount to fourteen per cent., but they vary in different cities and provinces according to the privileges granted by the ſovereign, which in ſome places have entirely ſuperſeded them; and they are no where levied to their utmoſt extent. According to Uſtariz, and ſuch obſervations as I have been able to make, their average is about ſix or ſeven per cent. Notwithſtanding theſe modifications they do not prevent the tax being highly burthenſome to trade and induſtry.

3dly, The *tercias reales* are another impoſt jointly collected with the provincial rents; it is the two-ninths which the court of Rome ſince 1274 permits the Kings of Spain to receive upon all the tenths of their kingdom. It is received in kind from the produce of the earth, and is afterwards ſold for the King's account. This impoſt ſcarcely produces ſix millions of rials; and would be ſuſceptible of a conſiderable augmentation, did not government, in collecting it, truſt to the unfaithful ſtatements of the eccleſiaſtical offices.

4thly, The *ordinary and extraordinary ſervice, and its fifteen in the thouſand*, is a ſpecies of tax paid by the plebeians only, who in Spain are known by the denomination of *eſtado general*. It is collected with the *alcabale y cientos*, according to an aſſeſſment made by the tribunals, in proportion to the known property of each of the contributors.

5thly, There is beſides an impoſt upon the ſale of *ſouda* and *barilla*, with ſome other particular taxes, which cannot be enumerated in this general account.

Laſtly, The duties of entry into Madrid form another ſource of revenue to the king; they are at preſent farmed out to the community of *Gremios*, at ſeven millions and a half of reals. All the interior contributions of the provinces of the crown of Caſtile produce about 120 to 140 millions of rials, (or ſomewhat above one million four hundred thouſand pounds ſterling).

The

The provinces of the crown of Arragon have another form of taxation. They are exempt from the *alcabale*, for which equivalent duties are ſubſtituted; they pay one general contribution, which each city, borough, and community aſſeſſes proportionately on its inhabitants. As theſe provinces were the laſt to acknowledge the authority of Philip V. that monarch, to puniſh their obſtinacy, deprived them of a part of their privileges, and eſtabliſhed a form of taxation different from that of the crown of Caſtile. But his intention was evaded; and, in fact, they are better treated in this reſpect than the reſt of the kingdom.

The provinces of the crown of Arragon are beſides ſubject, like thoſe of Caſtile, to the impoſt called *tercias reales*, and obliged to take, at a fixed price, the articles ſalt, tobacco, lead, &c. which are ſold for the King's account. Both are alike liable to the *bull of the Cruſade*.

The primitive object of this bull was to grant indulgencies to thoſe Spaniards who ſhould contribute, either by perſonal ſervice or ſubſcription, to ſupport the war againſt the the infidels. The deſtination of the produce of the bull is ſtill the ſame, ſince the Spaniſh monarchs who receive it are obliged to apply it to the ſupport of their fortreſſes and garriſons upon the coaſt of Africa. Until the reign of Ferdinand VI. this grant of the court of Rome was to be renewed every five years; a ſubjection, of the inconvenience of which Philip V. was ſufficiently ſenſible on three different occaſions, when his quarrels with the Holy See prevented him from obtaining a renewal of the bull. It was not until the compact of 1753 that it was made perpetual: ſince that time it has become a conſtant ſource of revenue to the treaſury; and if Spain, influenced by motives of policy and humanity, ſhould become reconciled to every infidel nation, as ſhe has been under the preſent reign to the Ottoman Port, and ſome of the Barbary regencies, this tax, though inapplicable to its original purpoſe, would not the leſs continue to be levied.

The price of the bull is fixed at 21 quartos, about 14 or 15 ſols (7d. or 7½d.) No Catholic in Spain can diſpenſe with buying it without having his orthodoxy ſuſpected. Provided with this bull, beſides the indulgencies annexed to it, *he has the liberty of eating meat, with the conſent of his phyſician and confeſſor, as alſo to eat eggs and milk on faſt days, and during Lent.*

This ſpecies of voluntary taxation is received by the magiſtrate, who bears the title of *Commiſſary-general of the Cruzada;* it produces to the King from eighteen to twenty millions of rials.

The clergy are not exempt from it, nor is this the only tax they pay.

In the firſt place, they are in part ſubject to that of *los millones;* but to this it is neceſſary the pope ſhould conſent every ſix years by a brief. As there are many places where ſeparate accounts are not kept for eccleſiaſtics, they pay the whole tax in common with the laity; but the conſumption which each eccleſiaſtic makes in wine, oil, and other articles ſubject to the *millones*, is carefully eſtimated and always in their favour. In this manner a calculation is made of what they ought to pay of the tax, and they are reimburſed whatever they have paid above this eſtimation.

But, as in moſt caſes, actual fact differs a little from right, the clergy pay next to nothing of the *millones*, in the ſmaller diſtricts, where they eaſily acquire a preponderance, and the weight of the tax falls upon the body of the people.

There is another trifling impoſt called *ſubſidio*, to which eccleſiaſtics are alſo ſubject.

But the greateſt contribution levied upon them is the *eſcuſado*, which alſo is denominated *caſa dezmera, tenthed houſe*, becauſe it conſiſts in the right granted by the Holy See to the Kings of Spain, to appropriate to themſelves the moſt advantageous tithe of each pariſh, as well of the crown of Caſtile as that of Arragon. This contribution, were it exactly

exactly levied and collected, would bring a very considerable sum to the Spanish treasury; but it has been made an object of speculation and subscription, which has considerably diminished its produce. Under the reign of Ferdinand VI. a resolution was taken to discover what it really would produce, and for this purpose it was for some years managed by commissioners. But before sufficient information was obtained, the Marquis of Squilace, coming to the administration of finances almost at the same time that Charles III. ascended the throne, was too much in haste to farm it. And notwithstanding it was proved in 1756, that for the crown of Castile alone it might be stated at 16 millions of rials, the minister of finances farmed out the whole of the *escusado*, for Arragon as well as Castile, at twelve millions, to the corporation of merchants at Madrid, commonly called the *Gremios;* and since then a part of the clergy have obtained a power of managing it on their own account, with which privilege they were allowed an abatement of one-third, so that in 1779 it did not produce more than ten millions.

Notwithstanding these restrictions, if we observe that the *tercias reales* are still an indirect impost on the clergy, and at the same time recollect that the Kings of Spain have the power of granting pensions upon all benefices, even to a third of their produce, we shall find there is little foundation for the assertion, that the Spanish clergy do not contribute to the expences of government. Moreover, subsequent to the war terminated by the treaty of Basle, with the permission of the Holy See, the clergy was even more heavily taxed than the rest of the nation; the extraordinary assessments upon it on this occasion amounted to 36 millions of rials. This preference it certainly well deserved. It had exerted very successful efforts to inspire the people with the opinion that the cause of God was identified with the war against France. I have been satisfactorily assured that an offer was made by the general of an order to the King in 1793, to raise a corps of 40,000 monks, to be commanded by himself *. The offer was however not accepted. But the Spanish clergy not being admitted to serve the sacred cause in person, the government thought it reasonable it should contribute from its immense revenues.

It may be imagined, that Spanish America is one great source of revenue to the royal treasury, but hitherto its produce has been but trifling, if the revenue arising from the mines of Mexico and Peru, and the duties paid on the importation of its produce into Old Spain, be excepted.

For a long time the expences of the administration of these immense colonies were not defrayed by the revenues they produced; and it is only since the administration of M. de Galvez, that Mexico has yielded a surplus by the establishment of the farm of tobacco.

All the duties and contributions, of which I have given a summary account, produced in 1776 no more than 440,000,000 rials, in 1784 they produced 685,068,068, in 1787 only 616,295,657. This is the result of the account given by Lirena, the minister in 1789. This account, which will long be famous in the history of Spanish finance, although it be not the first of its kind, yet deserves some notice. Lerena, who up to the day of his death was considered a novice; whose rapid and inexplicable fortune caused in 1785 astonishment mixed with indignation, and who carried with him to the grave the hatred of the public, earned by his rigidity, his violent measures, and his persecuting, ungrateful, and vindictive spirit; Lerena was however firm and laborious; *his accompt* gives sufficient evidence of this. The new King, being desirous of establishing that reform in his finances which the happiness of the nation and the public voice

* It was Father *Joachim Company*, at present Archbishop of Valentia.

required

required, ordered to be laid before him an account of all the ſuppreſſions that could poſſibly take place of officers employed in collecting the taxes. Lerena in his accompt began with an aſſurance, that, taking the diverſity and complication of the impoſts into conſideration, any ſuppreſſion whatever was impracticable.

In order to prove the inconvenience which, as he termed it, a *pitiful economy* would occaſion, he cited, on one hand, the example of England, which, for the ſimple branch of the *cuſtoms*, had nine directors with large ſalaries, and drew from it on an average £3,789,274 ſterling, (this was previous to the firſt war with France,) and, on the other, that of our famous general, who, having neglected to appoint inſpecting clerks agreeably to the additional convention of 15th Jan. 1787, for the purpoſe of valuing the Engliſh merchandize allowed by the treaty of commerce to be imported into France, the revenue of that country was defrauded of two or three millions of livres, and France was inundated with a flood of Engliſh goods, to the material injury of her own manufactories.

It had been aſſerted, that the ſalaries of the officers amounted to at leaſt one half of the taxes collected. Lerena affirmed this to be a manifeſt falſehood; and proved it by the following detail:

1ſt, The *general rents*, with which were joined thoſe of the *admiralty* and of *health*, gave employment to 994 perſons, who collected	Rials	Rials 159,108,172
Whoſe ſalary amounted to	5,375,127	
And that of the *reſguardo* of the whole kingdom; that is to ſay, the guards for preventing fraud	5,501,322	
Collectively, therefore, the amount of expence was		10,876,449
2dly, The *rent of tobacco* and ſnuff produced in 1787		129,007,414
It occupied 4,587 perſons at a ſalary of	13,631,530	
to which is to be added the allowance of 10 per cent. on all they ſold granted to the retailers, in number 13,675	2,416,580	
Making a total of expence on the collection of		16,047,110
3dly, The *provincial rents* amounted in 1787 to		122,857,678
3150 perſons employed, cauſed an expence of		9,974,085
Larena proved, that by uſeful reforms which he had effected, this branch of revenue had increaſed 14,350,124 Rials.		
4thly, The *rent of ſalt* produced		55,408,934
It employed 1,515 people, at an expence of		4,676,844
5thly, The revenue from the duties on the exportation of wool produced		27,449,246
And the ſalary of 221 perſons employed in its collection amounted to		635,943
6thly, The *revenue from powder*, with that of the mines of copper on the Rio Sinto, and that of the manufactory of cards for Spaniſh America, produced		8,468,124
Employing 290 perſons, at an expence of		1,116,452
7thly, The *revenue from ſulphur* produced		369,417
And the charges on it for its 8 collectors was		14.650
8thly, The revenue from *quickſilver*, and its acceſſories		436,844
The collectors of which received 8 per cent. on the amount		34,947
9thly, That from *cards for Spain* produced		1,072,649
And the 9 clerks were paid		44,944

After thus preſenting a general detail of the revenues collected by directors, and general commiſſaries, Lerena obſerved, that the perſons employed in the different branches amounted to 10,729, whoſe ſalaries were - Rials 37,199,970
which formed a charge upon the amount received of about 7 rials 13 maravedus per cent., that amount being - 510,859,937
To theſe principal ſources of revenue, 21 other articles remained to be added, collected by different adminiſtrators, and producing in 1787 - - - - - - 105,435,720
The expence of their collection amounting to - - - 2,647,333
making about 2 rials, 17 maravedus per cent.
Recapitulating the preceding articles, the expence of collection altogether abſorbed the ſum of - - - - - 40,483,248
And the total of revenue amounted to - - - - 616,295,657
So that the coſt of the collection was in a ratio to the amount of 6 rials, 14 mar. per cent.
However, to this was to be added the expence of maintaining 3,571 guards, whoſe buſineſs it was to prevent ſmuggling, which coſt 11,002,645
which added to the preceding ſum, made the entire expence of collection - - - - - - - - 51,485,893

General Recapitulation.

Total of perſons employed in every ſhape - - -	27,875
Amount of their ſalaries - - - - -	51,485,893
The whole revenue - - - - - -	616,295,657

Their collection conſequently coſt little more than a twelfth part.
Larena farther triumphed by compariſon of this expence to that of the ſame deſcription in England and France, in which countries, ſaid he, there are no doubt a ſufficient number of detractors of Spaniſh adminiſtration; and the reſult of the compariſon appeared aſtoniſhing to the Spaniards.

	Livres
At this time, ſaid he, according to Smith, the revenue of England is - - - - - - - - - -	246,966,000
The expence of collection - - - -	25,911,000

It conſequently coſts more than ten per cent.

In France, the revenue of 1789 being - - -	544,800,000
The expence was - - - - - -	57,655,000

Thus did they each abſorb more than a tenth of the whole revenue. Larena added, that on his coming into adminiſtration, Spain had an annual deficit to cover of 40 millions of rials; that he had augmented its revenue more than 100 millions, and expected ſtill to increaſe it 50 millions more. Death, however, did not allow him to realize theſe brilliant hopes; and the expences to which Spain became afterwards ſubject would otherwiſe have obliged him to forego his plan.
The remainder of his memoirs is but an apology for the courage and activity that he had diſplayed; a little maſter-piece of arrogance, in which he is neither modeſt with reſpect to himſelf, nor parſimonious of injurious expreſſions againſt the great, the rich, and the ignorant, in which claſſes alone, he aſſures the King, are there any calumniators of his adminiſtration.

As

As a repreſentation of the revenues of Spain, there is nothing wanting in this piece. A diſplay of its debts and expenditure is however a deſideratum which is elſewhere to be ſought for.

	Rials
In 1776, the ſum of its expenditure was	505,586,474
Of which the army coſt more than	200,000,000
And the navy above	127,000,000

It is true in that year the navy incurred the greater part of this expence in a very ſhort war with Portugal.

In 1777, the total expence was	476,385,565
Out of which the army coſt more than	210,000,000
And the navy but little above	86,000,000
And as the whole of the revenue this year amounted to no more than	372,346,884
There was conſequently a deficit of	104,038,681

Recourſe was had to momentary and ruinous expedients to cover a part of this; but as at that time the government was employed in preparations for a war which ſhortly after happened, it was obliged to adopt means, not perhaps the beſt poſſible, but the moſt certain, by increaſing, 1ſt, the provincial revenue — 30,000,000

2dly, The revenues of the crown of Arragon — 12,000,000

And 3dly, That of tobacco, by — 2,000,000

But the product being neceſſarily ſlow of receipt, only conſequent, and probably over calculated, the miniſter of finance was obliged, in 1779, to extort from the ſociety of the *Gremios* at Madrid, an advance of 50 millions, at 3½ per cent.

Theſe meaſures yet being inſufficient, recourſe at length was had to *royal notes*, of which we ſhall in future ſpeak more largely.

In 1784, at the end of the war, the expenditure was — rials 685,068,068

and the receipt by extraordinary means was made to cover it.

In 1786, the whole revenue of Spain was	615,335,147
And in 1787, as we have before ſhewn	616,295,657
But the amount of debt was	1,543,906,944

Let us proceed to detail it, and advert to its ſource.

CHAP. II.—*Ancient and modern debts of Spain.—Gremios.—Royal notes.—Projects for the amelioration of the finances.*

THE ſovereigns of the Bourbon family inherited from thoſe of the houſe of Auſtria debts, called *Juros*, which, however, bear but a moderate intereſt. This is yet a charge to the ſtate of about 20 millions of rials, (203,000l.) the payment of which is made from different branches of the revenue.

Philip V. left debts to the amount of 45 millions of piaſtres (about 7,500,000l. ſterling). At his death, Ferdinand VI., terrified at ſo enormous a burden, and heſitating between the fear of making the ſtate ſupport it, and the ſcruple of depriving the creditors of their right, aſſembled a junto, compoſed of biſhops, miniſters, and lawyers, and propoſed to them the following queſtion: *Is a king obliged to diſcharge the debts of his predeceſſor?* It was decided in the negative. The conſcience of His Majeſty was quieted, and bankruptcy reſolved on.

Ferdinand VI. carried his inconſiderate œconomy ſtill further. Wholly employed in making ſavings, he ſuffered every branch of adminiſtration to languiſh; the army, fortreſſes, and colonies were neglected. When Charles III. aſcended the throne in 1759, he found in the royal coffers upwards of 6,000,000l. ſterling, and thought it incumbent on him to repair the fatal omiſſion of Ferdinand VI. In 1762, he paid ſix per cent. of the capital due from Philip V., and continued paying annually the ſame for five years. In 1767, the dividend was reduced to four per cent. The following year ſixteen millions of rials were diſtributed among the creditors; and in 1769, the expences of the ſtate were ſo increaſed as to neceſſitate a ſuſpenſion of further dividends; an interruption which gave the finiſhing ſtroke to the credit of royal effects. Whilſt I was in Spain the firſt time, people were glad to ſell their claims at a loſs of eighty per cent.

However, there are ſome opportunities of diſpoſing of them to greater advantage. Sometimes on treating with government upon any enterprize it wiſhes to favour, a certain portion of them is received at par. They are, moreover, received in payment of the *medias annatas*; but, except in theſe particular caſes, the claims upon Philip V. are almoſt of no value; they bear no intereſt, and the entire liquidation of them, if ever it ſhould take place, can only be conſidered as very diſtant, particularly to foreigners. For them, however ſacred their claim, however powerful their advocates, they muſt ſeek in vain for exception from the law which forbids the payment of foreigners until ſuch time as the nation's creditors be wholly ſatisfied. I have frequently heard the following proof related at Madrid: A valet de chambre of Louis XV. was a holder of one of theſe ſecurities, and imagined he might profit by the favour ſhewn him by the King to obtain an exception. Louis XV. wrote with his own hands to Charles III. requeſting he would grant it; but the Spaniſh Monarch anſwered the King, that he was obliged to refuſe his requeſt.

Charles IV., upon his acceſſion to the throne, teſtified his wiſh of paying the debts of Philip V. and Ferdinand VI., pointing out thoſe which he was deſirous ſhould be wholly paid, and thoſe which the treaſury might receive in payment of duties. Scarcely had theſe meaſures been ſketched out, before preparations for an uſeleſs war, and ſhortly after the conſequent expences, obliged him to ſuſpend them.

So many aberrations from their purpoſe cannot but have greatly weakened the credit of the Spaniſh government. Of this Charles III., whoſe honeſt nature inſpired univerſal eſteem, twice had a vexatious proof.

In 1783, he endeavoured to open a loan of 180 millions of rials (about 2,000,000l.). One of the conditions of which loan was, that the claims upon Philip V. ſhould be received to the amount of a third of the ſubſcription. This, however, did not raiſe the value of the claims ſo much as was expected. At the beginning of the year 1785, it had ſcarcely produced 12 millions of rials, and it was ſoon afterwards cloſed. Foreigners were unwilling to expoſe themſelves to freſh hazards; and as for the Spaniards themſelves, they are in general ſuſpicious, and have no diſpoſition towards ſtock-jobbing. They prefer a moderate gain to hazardous ſpeculations ſo eagerly adopted in ſome other countries; and are more than any other nation attached to ancient habits.

For a long time paſt, far from being tempted by foreign ſpeculations, they confine their confidence to a company of merchants at Madrid, known by the name of *Gremios*, which we have already mentioned.

The treaſure of the Gremios is a kind of public bank, in which individuals may place their money at the moderate intereſt of two and a half and three per cent. The foundation of the confidence it inſpires, is the conſtant ſupport which government has given

the Gremios, and the regularity with which they have always paid the intereſt of the capital in their hands; and although they may have hazarded ſpeculations beyond their ability, and they be continually in advance to government, nothing hitherto has ſhaken their credit. They hold, as we have obſerved, the farm of the duties on entry at Madrid, and a ſmall portion of the *eſcuſado*; and are concerned in the principal manufactories in the kingdom. The government, which has frequently had recourſe to them in caſes of neceſſity, has long conſidered their bank as the chief pillar of the ſtate.

Adminiſtration, however, has lately perceived that it could do without them. Neceſſity even made this a law. At the beginning of the American war, the ſtate no longer having at hand the extraordinary reſources required for the maintenance of its forces by ſea and land in both hemiſpheres, and deprived of the periodical treaſures brought from Spaniſh America, which it was unwilling to expoſe to the ſeizure of Engliſh privateers, thought it neceſſary to make uſe of a reſource, until then unthought of in Spain. It made application to ſome French merchants eſtabliſhed at Madrid, and negociated by their means a loan of nine millions of piaſtres, (about 1,500,000l. ſterling,) and iſſued paper to the amount of the ſame ſum. This was divided into ſixteen thouſand five hundred bills, or *vales reales*, of ſix hundred piaſtres each, at an intereſt of four per cent. Government were blamed for not having eſtabliſhed at the ſame time a bank, at which theſe bills might have been paid in caſh on preſentation; but diſpoſeable funds would have been requiſite for ſuch a meaſure, and the ſimple creation of paper-money proved that of ſuch they were deficient.

The court was blamed, with more apparent reaſon, for having negociated the loan upon diſadvantageous terms, which betraying its embarraſſment could not but diminiſh public confidence. In fact, the bankers who by their credit realized the loan, aſked ten per cent. commiſſion, and obtained it. But in ſuch negociations the lender calculates his riſk, and the borrower his neceſſities; hence ariſes the law which one impoſes and the other receives.

However this may be, as ſoon as the negociation was made known of the motives and ſecurities, alarm became general. All exclaimed againſt a meaſure which, ſaid they, the moſt extreme diſtreſs could ſcarcely excuſe; a meaſure ſometimes taken to diſcharge preſſing debts, but never to contract new ones. Foreign bankers, who had advanced their money, ſtated, through the medium of Mr. Necker, that they were taken by ſurprize, and intimated deception, ſeeming to ſuſpect that the Spaniſh government had conceived the wild ſcheme of re-imburſing them in paper, or the ridiculous hope of giving this paper a value out of Spain. It loſt not a moment in removing their fears, and proving to them by actual reimburſements, how little foundation there had been for alarm.

Nevertheleſs the bills circulated in Spain. But the temptation of a greater intereſt than that commonly paid for ordinary ſubſcriptions was not ſufficient to give them credit. Every perſon took as few of them as poſſible, and was eager in paſſing them again. In courſe of the war they were at a loſs of twenty-ſix per cent., and the people exclaimed loudly. They knew not that at the ſame time the Americans, fighting for their liberty, almoſt entirely deſtitute of coin, ſaw their paper-money fall to forty and fifty per cent. It was not foreſeen that a neighbouring nation, ſtruggling for the ſame cauſe with almoſt all Europe, would have paper of which four and five hundred ſhould be given for one, and yet ſurvive the criſis.

This momentarily critical ſituation of government was a new triumph for the *gremios*. The credit they enjoyed was increaſed by the diffidence with which the bills were received.

ceived. Their bank ſeemed an aſylum to which people reſorted to lodge in ſecurity the money they thought expoſed to danger in the hands of government.

In the mean time, the neceſſities of government increaſing with the continuance of the war, new bills to the amount of five millions of piaſtres were iſſued in the month of February 1781; in ſhort, the following year others were iſſued in bills of 300 piaſtres each, to the amount of 221,998,500 rials (2,500,000l.). Its whole debt of this deſcription then amounted to 431,998,500 rials (about 5,000,000l. ſterling), without reckoning obligations of a leſs apparent nature, which raiſed it to near 800,000,000 of rials (9,000,000l. ſterling).

At the time the firſt bills were iſſued, Charles III. engaged to withdraw a part of them annually from circulation. But as at the beginning of the war he had been obliged to overburthen his people by an augmentation of a tax on ſome of the principal neceſſaries of life; at the return of peace, he preferred alleviating this burthen, to keeping his engagement with the creditors of the ſtate; and it was not before the month of June 1785, that bills to the amount of 1,200,000 piaſtres were withdrawn.

A few weeks afterwards, to the aſtoniſhment of the public, other paper was iſſued, to the amount of 48,000,000 of rials; theſe laſt bills, it is true, had for object the continuation of the canal of Arragon, the profits of which were to ſerve as ſecurity, ſo that this could not be conſidered as a charge to the ſtate.

In the mean time, the alarm which the real paper-money had excited was diſſipated by degrees. The royal notes were taken at par, and at the cloſe of 1786 they began to be ſought after, and even bore a premium.

The war which took place in 1793 made freſh emiſſions neceſſary; yet the *vales* were at the moſt critical period at no greater diſcount than 25 to 30 per cent.; which, as this kind of paper is deſtitute of any ſpecial ſecurity, if the precarious guarantee of a deſpotic government be excepted, is rather a matter of ſurprize. Towards the middle of 1796, theſe notes upon the frontiers were at a diſcount of 10 to 12 per cent., while in the capital they were at no more than 6 to 8 per cent. loſs. At a later period, when a rupture with England was apprehended, they fell to 18 per cent. diſcount; and it was foreſeen that in caſe of its taking place, the loſs upon them would be unlimited *. The amount in circulation at that time was 1490 millions of rials (17,000,000l. ſterling); and far from leſſening the amount, a loan took place in 1796 for 240 millions more, at 5 per cent.

What a leſſon for governments, whether monarchical or republican! A ſuſpenſion of various uſeful enterprizes, a ſpoliation of part of three of her provinces, the death of from forty to fifty thouſand of her ſubjects, the loſs of a valuable colony, which however did not in truth attain proſperity under her government, an increaſe of taxes and debt; theſe were the fruits which Spain reaped from a tranſitory abandonment of its real intereſts, in ſtriving to avenge the death of a king, and the violation of its holy religion. At the inſtant of war being reſolved upon, (I was witneſs to the general enthuſiaſm,) the whole nation, with the exception of a few enlightened individuals, participated the indignation of the court. Religious communities, grandees, rich proprietors, all made it a duty to ſecond its every effort. But the events of the war, almoſt wholly unfortunate, the obſtinacy with which we defended a cauſe that the Spaniards at firſt conſidered ſo odious, the neceſſity of reſt after ſuch violent agitations, the tardy convic-

* In effect, they fell 75 per cent. diſcount in 1801. But after the ſigning of preliminaries with England they roſe rapidly. As early as 1802, they were but at 20 per cent. diſcount; and in the month of April, they were at Amſterdam at only 15 per cent. loſs. The arrival of the treaſure ſo long expected from America may poſſibly raiſe them to par.

tion of the ſlight intereſt which Spain had in weakening a neighbouring ſtate, its natural ally; theſe collective circumſtances abated its priſtine warmth. Indifference with reſpect to the war at firſt, and ſucceſſively impatience brought about peace; and never was peace more looked for, nor received with greater tranſport than that, the baſis of which I was charged with eſtabliſhing at Figueres; and which was definitively ſigned at Baſle the 22d of July 1795, between the French republic and the King of Spain.

It was then hoped that the court of Madrid would employ its leiſure and the ſavings of peace in repairing the breaches effected in its finance by a war, to ſay the beſt of it, uſeleſs and without object. But ſhortly afterwards a ſecond rupture ſuſpended the return of its external reſources, and delayed the period of its employing the means of reſtoration. Government has, however, effected the diſcovery of them within the kingdom, even in midſt of the calamities of war.

Spain contains an immenſe quantity of funded property, known by the name of *Memorias y Coſradias* The firſt conſiſts in foundations made in favour of different churches, under the obligation of ſaying maſs for the ſoul of the teſtator. The *Coſradias* are bequeſts of religious perſons, conſecrated to the particular ſervice of the images of the Virgin Mary and various ſaints. For too long a time had the deſtination of theſe different properties made them be conſidered as ſacred. Under a leſs enlightened, and leſs courageous government, never would a miniſter have dared to touch them; and if the Spaniſh nation were ſo generally or ſo blindly ſuperſtitious as it is eſteemed to be, they could not have been touched with impunity. This meaſure has, however, been taken, and happy has been the reſult ſince its adoption in November 1800.

The ſoil, palſied through the piety of the faithful, inalienable like other eccleſiaſtical property, was badly managed and worſe tilled. Government expoſed lands of this deſcription to ſale, for the purpoſe of ſucceſſively cancelling the royal notes. In the early part of 1802 theſe ſales had already produced ten millions of piaſtres (1,250,000l. ſterling).

Spain has reaped advantage from this meaſure in every ſhape, in ſpite of ſcruples, purchaſers flocked in abundance. In the hands of their new proprietors theſe lands double their former crops. Thus has government made a long ſtride towards the amelioration of agriculture, and the increaſe of population. A few ſuch additional efforts of courage will tend to reſcue the country from that prejudiciable languor, more hurtful perhaps to its intereſt than bad adminiſtration itſelf.

But in Spain perhaps more than in any other country, boldneſs muſt be tempered with caution. Innovations are there diſliked: it is a country which clings to ancient prejudices; and this propenſity has hitherto prevented the adoption of certain uſeful meaſures which, while they would have benefited the revenue, would not have been oppreſſive to the people. In the reign of Charles III. government had it more than once in agitation to appropriate to itſelf the property of the four military orders, which would have produced much more in the hands of the ſovereign than under its preſent bad management, and beſides bringing an increaſe of revenue, would have furniſhed the means of compenſating by penſions the commanderies annexed to theſe orders. But the ſcruples of the monarch prevented the adoption of the project.

Another equally reaſonable would be a general tax upon all the lands in the kingdom, not excepting thoſe of the nobility and clergy. But this project, againſt which thoſe two powerful bodies would certainly exclaim, and whoſe intrigues would preſent obſtacles which the Spaniſh government might find it difficult to overcome, without calling in a dangerous ſupport, will perhaps oblige Spain to await, in the ſlow reſources

of

of œconomy, the advantages ſhe might propoſe to herſelf from a ſudden but dangerous change.

Under Charles III. the government, far from being alarmed at the treatment her returning credit firſt met with, did not defer a ſecond attempt, intended to give to her paper an advantageous circulation, to awaken the Spaniards from their lethargy, draw from their cheſts the money there lying uſeleſs, both to themſelves and the ſtate, and throw it into circulation to the advantage of commerce and induſtry. Such were her great objects in eſtabliſhing in 1781 a national bank, which has ſcarcely any thing in common, except its name, with the banks of other ſtates in Europe.

CHAP. III.—*Bank of St. Charles:—Notes.—Coin.*

THE idea of a national bank was given by a French banker, M. Cabarrus, eſtabliſhed at Madrid, who began to inſinuate himſelf into the favour of government at the time the firſt bills were iſſued. M. Cabarrus had a vigorous and firm mind, with talents cultivated in ſecret to the period which brought him into notice. The favour of the miniſter would not have ſufficient to enable him to combat with ſucceſs the numerous obſtacles he had to encounter. Embarked in a project, in which a thouſand prejudices concurred to prevent his ſucceeding, he has at once acquired great honour, and an immenſe fortune, diminiſhed no doubt by the perſecutions he has ſince undergone. Nothing but partiality can attribute to chance alone ſuch brilliant and continued ſucceſs. M. Cabarrus has had very ardent friends and bitter enemies. This is not the lot of common men.

In 1781, after having profoundly meditated on the reſources of Spain too long unproductive, the cauſes by which they had been obſtructed, and the means of giving them activity, he digeſted the plan of a national bank.

Its principal object was to give employment to a large ſum of money, which was either unemployed, or placed at a very moderate intereſt. The firſt means he propoſed was to eſtabliſh a capital, which would diſcount, at four per cent. per annum, all bills of exchange drawn upon Madrid. This expedient was trifling; Madrid is not properly a commercial city. The wool Spain ſends abroad is the principal article paid for in that metropolis, and this alone would not have furniſhed any very fruitful employment for the capital of the new bank.

The profits of the *realgiro* were ſuperadded, a particular ſpecies of bank, from which the court takes the money it has occaſion to ſend abroad, either for the payment of ambaſſadors, envoys, conſuls, &c. or for other purpoſes. This ſtill was but a weak aſſiſtance, no more than two or three millions of livres annually paſſing through this bank.

But the chief ſource of profits which M. Cabarrus propoſed to open to the national bank was the victualling and furniſhing of the navy and army. Contracts for the firſt had heretofore been given to different perſons. The ſecond was held by the *Gremios*, and the ſeveral leaſes and contracts with theſe and the government were upon the point of expiring. The bank might therefore ſoon obtain poſſeſſion of their privileges.

Government was eaſily induced to favour a plan, which went to diſtribute among a great number of citizens thoſe profits hitherto confined to a few. The capital of the propoſed bank amounted to the ſum of 300,000,000 of rials (3,400,000l. ſterling), divided into 150,000 ſhares, 2,000 rials each. No one who had property to purchaſe ſhares was excluded from the profits they might produce, and theſe, according to the proſpectus, were very promiſing. Beſides idle money to which a depoſit was afforded

that

that yielded a benefit, it was hoped that a great part of that in the hands of the Gremios, at a moderate intereſt, would be removed from their coffers to thoſe of the national bank. The ſurplus of the levies of cities and communities were alſo counted upon. Theſe were in the adminiſtration of the council of Caſtile, whence the national bank was to take, and place them for the advantage of the perſons concerned. In Spain there are magazines of grain in moſt of the cities, boroughs, and villages. Their ſurplus is converted into money. This was alſo an unfruitful capital, which the bank might make productive.

The project appeared to promiſe great advantage to every claſs of citizens. It is not therefore aſtoniſhing that it ſhould have been adopted by the adminiſtration.

It was diſcuſſed in 1781, in an aſſembly compoſed of members from the chief branches of government, and who came to a determination that the national bank, or bank of St. Charles, ſhould be charged with victualling and cloathing the army, and furniſhing the navy with the articles above-mentioned, that it ſhould be allowed an intereſt of *four per cent.* on account of the advances made to government, and a commiſſion of *ten per cent.*

The proſpect held out was apparently ſeductive; however, the greater part of the people were unmoved by it. Few withdrew their money from the bank of the Gremios; who were only obliged to raiſe the intereſt they paid to three and a half per cent. The new eſtabliſhment had ſome partizans, but theſe appeared ſuſpicious. Its antagoniſts, armed with the pretence of public good, forcibly declaimed againſt it; they kept up a miſtruſt for which anterior events had laid a foundation, and gained many over to their opinion.

The enemies to the new bank were, in the firſt place, all thoſe who are equally ſo to every novelty; others whoſe calculations were deranged by it, and thoſe eſpecially who from jealouſy or national prejudice looked with an evil eye upon a foreigner, ſupported by the miniſtry; who, ſaid they, takes advantage of a tranſient credit to overturn a nation which might find among its own citizens men who underſtands its intereſts much better. The parallel already drawn between the creation of paper credit and the ſyſtem of the famous Law was then recollected.

The project in France was that of an ambitious ſtranger, who had given a mortal blow to the credit of the kingdom, by endeavouring to render it flouriſhing. In Spain it was that of a ſtranger alſo, who pretended to animate public credit and commerce, and aſpired to ſeduce the nation, by tempting it with a chimerical profit. Each had finiſhed the plan of a bank; therefore the reſemblance was perfect. Thus judge the greater part of men. Malevolence pretended, and echoed upon by credulity and ignorance, that the bank of St. Charles preſented to the public a plan of operation illuſive in its nature, and totally incompatible with the true intereſts of the nation; and which inſtead of favouring the liberty of commerce, muſt be prejudicial to that, as well as to agriculture and induſtry; that it naturalized an evil until then unknown in Spain, a claſs of uſeleſs annuitants who ſhould live in opulence and idleneſs on the labours of their fellow-citizens; and that after having held up to public hatred all excluſive privileges, it carried on itſelf the moſt odious of monopolies.

What furniſhed a pretext for the laſt accuſation, was a grant which the bank of St. Charles obtained ſoon after its eſtabliſhment, for the excluſive exportation of piaſtres. This money it is well known is employed to pay the balance of accounts due from Spain to the other nations of Europe.

The exportation of piaſtres for this purpoſe cannot be diſpenſed with. In leſs enlightened times the Spaniſh miniſtry conceived the idea of turning it to advantage:

to increaſe the revenue of the ſtate, ſuch exportation was ſubjected to a duty of three per cent. which, in 1768, was augmented to four, and although the miniſters are now convinced that it is only an additional tax on their own traders, to whom foreigners ſell their goods four per cent. dearer, the ſtate of Spaniſh finances, and, perhaps, the remains of an attachment to old prejudices, have not yet permitted them to take it off.

The conſequence is, that the duty being ſufficiently high to give temptation to ſmuggling, it is eluded in every ſhape, and although a ſufficient quantity be exported to cover the balance the royal treaſure is deprived of a part of its duties thereupon.

To remedy this inconvenience, the bank wiſhed for the excluſive privilege of exporting all the piaſtres neceſſary to diſcharge the balance due from Spain, and repreſented, that the grant would prevent the value of money from being increaſed, which muſt be the neceſſary conſequence of multiplied negociations; and diminiſhing the fraudulent exportation of piaſtres, by an extraordinary vigilance, ſuch as could not be expected from the agents of government.

Its wiſh was granted and it was ordered, that to prevent the piaſtres from being fraudulently withdrawn out of the country, they ſhould all paſs by the way of Bayonne, and that thoſe who ſhould have money to ſend into foreign countries, ſhould be obliged to take bills from the bank.

In ſpite of numerous exclamations proceeding chiefly from private intereſt, the bank of St. Charles was put in poſſeſſion of its privilege in the month of November 1783. The firſt uſe made of it proved very advantageous to the ſubſcribers. The return of peace brought with it a prodigious quantity of piaſtres. The bank exported upwards of twenty millions in 1784, and the year following nearly twenty-two millions. The revenue itſelf gained by the new arrangement. The moſt advantageous preceding years had not produced ſix millions and a half of rials; it received from it in 1784 upwards of fifteen millions, and from ſixteen to ſeventeen millions in 1785. The bandage then fell from the eyes of ignorance; malevolence was dumb, and the bank triumphed. The ſingle article of piaſtres afforded twelve millions of rials as a dividend to the ſtock-holders.

In the mean time the expiration of the contracts with government for the victualing of the army and navy had put the bank in poſſeſſion of theſe principal ſources of its revenue. Its dividends were conſequently enlarged by it. That of 1784, the firſt it made, was nine and a half per cent.

The triumph of the bank was then complete, and as men in all countries ever paſs from one extreme to another, invective was ſoon changed into enthuſiaſtic panegyric. The bank took advantage of this revolution, to increaſe, at different times, the ſhares which it had yet to diſpoſe of, and thus enabled itſelf to increaſe future dividends. The fermentation reached foreign kingdoms, which were then much addicted to ſtock-jobbing. In a little time the ſhares of the bank roſe in France, Geneva, and other places to 3040 rials; and the Spaniards, having leſs faith or more foreſight than foreigners, encouraged this inconſiderate ardor.

It was, however, but momentary, although it laſted long enough to produce pernicious revolutions in ſeveral fortunes. Some perſons took upon them to oppoſe the predilection it had excited. *Mirabeau* particularly, *that inſurgent of public opinion*, as he called himſelf, with an energy too natural to him, attacked the bank of St. Charles. He even wrote a thick volume againſt it, in which he was prodigal of his malediction, predicted the moſt baneful conſequences to its proprietors, and loaded its author with innocent invectives. He affirmed, that great commercial nations had reaſon to fear leſt their ſubjects, who had great capitals, ſhould embark too much of their property in the bank of St. Charles, as they had need of all their aid to lighten the burden of their own debts; and

and that *individuals who expoſed their fortunes in ſo hazardous an enterprize, acted like bad citizens as members of ſociety, and like madmen as fathers of families.*

The court of Madrid, in June 1785, proſcribed the publication, but this proſcription did not prevent the work from having effect. The enthuſiaſm of French ſtock-jobbers abated, and never after revived. A great part of the ſhares of the bank, originally ſold to foreign countries, have returned to Spain. The directors of the eſtabliſhment redeemed thirty thouſand ſhares in 1787 and 1788, ſo that at preſent there are no more than one hundred and twenty thouſand in circulation.

Four years after its foundation M. Cabarrus projected a new ſource of profit by connecting it with the Philippine Company, of which he had juſt laid the firſt ſtone. He induced the ſtockholders in 1785, to add to the funds of the company the ſum of twenty-one millions of rials, deducted from the dividend of 1784. Whatever may be the iſſue of this new inſtitution, this partnerſhip cannot at any rate be prejudicial to the funds of the bank.

The epoch of the infatuation which it cauſed is gone by, probably never to return, that of its aſperſion ſhould alſo be paſſed, the public opinion with reſpect to it appearing now to be ſettled. It is clear, in ſpite of the authority of Mirabeau, that without ceaſing to be a *good citizen* or a *good father of a family* a man may buy ſtock in the bank of St. Charles; ſince it may be conſidered as firmly eſtabliſhed, having overcome the ſtorms which threatened it in its cradle.

Since 1785 almoſt all its meetings have been tumultuous. Lerena, who at that epoch became miniſter, began his career by manifeſting his antipathy againſt its inſtitutor; he intrigued againſt its former managers, and diſplaced them in a ſcandalous manner, ſubſtituting their enemies inſtead of them. He took away from the bank their commiſſion for victualling the army and navy, which, according to treaty, they poſſeſſed a right to three years farther, and the profits of which might have repaired the loſſes ariſing from misfortunes of previous years; and gave the management of it to the *Gremios*, who had long impatiently waited for revenge. So many proofs of malevolence diſcredited the ſhares to ſuch a degree, that towards the end of 1791 they ſcarcely ſold for 1800 rials, dividends included.

The animoſity of Lerena did not end here. Jealous of the credit and ſucceſs of M. Cabarrus, whom he looked upon as a dangerous rival, and irritated by the incautious language which the latter allowed himſelf when ſpeaking of him, he obliged him by his vexatious conduct to reſign his ſituation in 1790, as perpetual director of the bank. Shortly after, having intercepted a letter of inſignificant conſequence, which he had addreſſed to one of his correſpondents, he made it a pretext for arreſting him. His detention laſted more than five years, and Lerena, as capable of nouriſhing as he was calculated to excite hatred, carried with him to the tomb the ſatisfaction of leaving his victim in priſon. His ſucceſſor M. Gardoqui had an injury left him to repair. Whether for want of credit, whether owing to the tardineſs, which however left room for diſagreeable interpretations, he was not ready in fulfilling this duty. The caſe of M. Cabarrus underwent thoſe dilatory forms which are but too common in Spain, and which ſecret malevolence poſſeſſes many means to procraſtinate. At length, in the courſe of 1725, he obtained a late but brilliant retribution. He was abſolved from all the charges againſt him, reinſtated in all his appointments, and authorized to proſecute the heirs of his perſecutor for the damage which his fortune had ſuffered from his long detention.

Since 1796 M. Cabrrus has undergone great viciſſitudes. He was honoured with the title of Count; reſumed almoſt all his priſtine influence over the bank of St. Charles, which was his offspring. In a meeting where he was preſent, it wase ngaged that all

animoſities and proſecutions ſhould ceaſe. By intimacy with the Prince of the Peace he recovered a part of his credit, and this ſupreme miniſter condeſcended in meaſure to take counſel of him in the nomination of two perſons to the miniſtry, who were more indebted to public opinion than favour.

The Count de Cabarrus was afterwards entruſted with ſome external miſſions of conſequence. On his return to Spain, his enemies had given out that certain connections he had at Paris rendered him a proper perſon to be employed in the principal embaſſy which Spain was then about to fill.

He was conſequently appointed ambaſſador to France. When on his way to occupy this new character, it was remarked to the executive directory, that being born a Frenchman, he could not repreſent a foreign power in his own country; and his appointment was not accepted.

This was an affront to him; it was made the ſubject of blame: from that period his credit declined, which was ſucceeded by a ſpecies of diſgrace. After travelling for ſome time, returning to Spain, he found that his enemies had taken advantage of his abſence. He ſoon ſaw that a philoſophical retreat was what befitted beſt his ſituation, and in conſequence retired to an eſtate ſome leagues diſtant from Madrid, where he has given himſelf up to agriculture and eſtabliſhments of induſtry.—But let us return to the bank of St. Charles.

Fifteen years after its foundation, it was in a far different condition to what it was at its beginning. It was to have been entirely independant of the government: it is totally under its controul. The court has appointed a *conſervatory judge*, and has the greateſt influence in the nomination of its directors. During the war with France its ſhares ſcarcely produced 1500 rials, although if one of the late years be excepted, it has conſtantly diſtributed a dividend of 6s. 5½d., 5, or at leaſt 4½ per cent.; a circumſtance ſcarcely credible, if the diminution of its ſources of profit be taken into conſideration. It diſcounts but few bills of exchange, its external payments on account of government may be looked upon as next to nothing, the proviſioning of the army and navy has been taken away from it entirely, and little remains by which any conſiderable profits can accrue to it beyond the exportation of piaſtres.

Such is the bank of St. Charles, ſo much more famous than it has deſerved to be. It has neither juſtified the pompous promiſes of its founders, nor the ſiniſter predictions of its enemies. But it muſt be allowed that all things conſidered, it has produced more advantage than inconvenience. It has electrified many heads which ſeemed deſtined to ſtupidity. It has developed and put in activity talents which were not ſuſpected; and has thrown into circulation much treaſure which laid idle and unemployed.

This naturally leads to our ſaying a few words on the circulating medium, and coins of Spain.

It is not eaſy to aſcertain exactly the amount of the currency in Spain. It has, within its dominions, mines which produce all the metals of which its coins are made. Stamped coins do not leave America without paying an impoſt; a ſecond is paid upon their importation into Spain, and a third upon their export thence to foreign countries. It ſhould ſeem from this, that by attention to the cuſtom-houſe receipts it were eaſy to aſcertain the exiſting circulation within the country. But of this money manufactured in the Spaniſh colonies, a great part is ſmuggled direct to different parts of Europe: another is carried away in a clandeſtine manner, for payment of foreign merchandize, before it touches a Spaniſh port, and laſtly, as re-coinage is not common in Spain, ſufficient data are wanting to determine the amount in the country with any nicety.

A ſhort time before his death, Muſquiez, who had been employed in the finance department either as head clerk or miniſter for twenty years, had not even a *gueſs* as to the amount. He acknowledged this in my preſence before ſome Spaniards more enlightened than himſelf, and it was in conſequence of the diſcuſſion which took place on this occaſion that I obtained information that the currency amounted to about *eighty millions of hard dollars*. Spain was at that time engaged in an expenſive war, and had not then made the ruinous attack on Gibraltar. She has ſince been effecting, or preparing certain military operations, the conſequence of which has been an extraction of capital without the country, which has not entered it again. In the war (notwithſtanding its extreme ſhortneſs) which ſhe waged with France, ſhe has experienced loſſes which are not repaired for years, and in the ſucceeding one with England, all her means of proſperity being ſuſpended, ſhe cannot fail of having become ſtill more embarraſſed. Thus, although her commerce has been more extenſive ſince 1782, and the produce of her mines be greater than before, her effective money may yet be deemed no greater than at that period. Perhaps it may appear ſurpriſing, that Spain, in poſſeſſion of almoſt all the mines of ſilver, and a great proportion of the gold mines, ſhould be reduced to ſo trifling a currency, particularly when one recollects, that at the time of Charles V. ſhe was in poſſeſſion of almoſt all the gold and ſilver in Europe, and (what is of infinitely more value) of the means of exiſting without intercourſe with other ſtates; from the fertility of the ſoil, and her abundant employment for the induſtry of the nation.

How is it that, in leſs than a century, this kingdom has fallen from this ſtate of ſplendor? To what is ſo rapid and complete a revolution to be attributed?

To many cauſes, and firſtly, to the abundance of its precious metals which have increaſed the price of commodities, and the wages of workmen.

To the decline of its manufacturers, which was the conſequence; to its depopulation, cauſed by the numerous emigrations to America; and the expulſion of the Moors and Jews.

It may alſo be more particularly attributed to the ruinous wars undertaken by Philip II. againſt the low countries, and which from the year 1567, to the truce in 1612, coſt upwards of two hundred millions of piaſtres.

But let Spain enjoy ſome years of peace, let her government ſecond the venerable diſpoſition of modern Spaniards for all uſeful enterprizes, ſhe will then no longer ſee the greater part of her circulation withdrawn to pay her balances to foreign induſtry, and receive in other countries of Europe the ſtamp of other ſovereigns.

The firſt coin, as well gold as ſilver, which was ſtruck in Spaniſh America, was clumſy in its ſhape as well as its impreſſion, which on one ſide was a croſs, and on the other the arms of Spain. Some of it is ſtill in circulation.

The impreſſion varied until the year 1772, when a new coinage took place, in which the head of the ſovereign was ſtruck on one ſide, and on the other the arms of Spain on an eſcutcheon.

We are now about to give an exact proſpectus of the different kinds of gold and ſilver coin ſtamped in Europe and America.

Ancient Coins no longer ſtruck in the dominions of the King of Spain, but which are current.

GOLD COINS.	Their value.
The piece of 4 piſtoles, unmilled, *onza cortada* -	321 rials 6 marav.
½ piece ditto, *medea onza cortada* -	160 20
golden unmilled piſtole - -	80 10
½ golden unmilled piſtole	40 5

This

This is the value of each of these pieces in general, but as their shape renders them susceptible of becoming worn without its appearing, they are only taken according to weight. They cannot therefore be precisely valued in French money, nor can the exact quantity of pure gold which they contain be noted.

There are as well gold coins of each of these denominations, which although milled are yet weighed upon their being taken. They are distinguished by having a cross on them in lieu of the King's image.

Gold milled coins no longer issued since 1772.

Names of the Coin.	Value.	English Value. Exchange at 4od. £.	s.	d.
The 4 pistole piece milled, coined before 1772,	321 rials 6 mar.	3	6	10½
The ½ piece of 4 pistoles, ditto	160 20	1	13	5¼
The pistole, do.	80 10	0	16	8½
½ pistole, do.	40 5	0	8	4¼

Silver coin no longer struck.

The old unmilled piastre,	20 rials	These four pieces are in the same predicament as the 4 gold unmilled pieces.
½ Ditto do.	10	
old pezetta	5	
½ do. do.	2 17 mar.	
The old milled piastre with two globes on it crowned, of the same value as the other, and the new coin,	20 rials	
The ½ do.	10	

Coins of the new stamp.—Gold Coin.

Names of the Coin.	Value.	Value in sterling. Money. Exchange at 4od. £.	s.	d.
The Quadruple, called in Spain *doblon de aocho*, and vulgarly *medulla*,	320 rials	3	6	8
½ Qpadruple or *media onza*,	160	1	13	4
El doblon de oro, or golden pistole	80	0	16	8
El medio doblon de oro,	40	0	8	4
The ducat, *reinten*, called vulgarly *du ito*	21 8 mar.	0	4	5

Silver Coin.

Names of the Coin.	Value.	Value in sterling. Ex. at 4od. per piastre. £.	s.	d.
The hard dollar *peso duro*,	20 rials	0	4	2
½ dollar *medio peso duro*,	10	0	2	1
La pezeta columnaria	5	0	1	0½
La media pezeta columnaria, or *bit*	2	0	0	5
El realito columnurio, or quarter, *pezeta columnaria*,	1 8½ mar.	0	0	3⅛

Note, these three latter pieces are only struck in America. They are milled, and bear on one side the arms of Spain, on the other two globes surmounted with a crown and placed between two columns.

La pezeta

Names of the Coin.	Value.	Value in ſterling. Ex. at 4od. per piaſtre. £.	s.	d.
La pezeta	4 rials	0	0	10
La media pezeta, or *rial de la Plata*	3 do.	0	0	5
El realito, or rial de billon	34 marav.	0	0	$2\frac{1}{2}$.
COPPER MONEY.				
The piece of two quartos	$8\frac{1}{2}$ marav.	0	0	$0\frac{10}{16}$
——quarto	$4\frac{1}{4}$	0	0	$0\frac{10}{32}$
——octavo	$2\frac{1}{8}$	0	0	$0\frac{5}{32}$
——maravedi	1	0	0	$0\frac{5}{64}$

The greater part of the gold coins are ſtruck in America. Few proceed from the mint at Seville.

Thoſe of ſilver which are ſtamped in Spaniſh America have for diſtinction on one ſide the Spaniſh arms between two pillars, and on the other, a garland of laurels round the effigies of the ſovereign, as if to denote that the Kings of Spain are the conquerors of America.

Thoſe ſtruck in the European mints only bear the ſhield without pillars, and the likeneſs of the King without a garland.

There are many mints in Peru. The beſt known is that of *Potoſi*. There is one at *Santa Fé de Bogota*, one at *St. Jago de Chili*, and one in *Mexico*. From the latter is iſſued the greater part of the dollars which are current in Europe.

Each mint has its diſtinguiſhing mark; that of Mexico has a capital M ſurmounted with an *o*.

There are but three in Spain; thoſe of Madrid, of Seville, and of Segovia. The diſtinction of the firſt is a capital M crowned, that of the ſecond an S, and that of the third a little aqueduct of three ſtories; but for many years the mint of Segovia iſſues none but copper coin.

There is beſides ideal money in Spain, ſome of which are monies of exchange: theſe are,

The *ſimple piſtole*, or doubloon, worth four common piaſtres, and, at 40d. the piaſter, 13s. 4d.

The *peſo*, called alſo *peſo ſencillo*, to diſtinguiſh it from the *peſo fuerte*, worth 3s. $4\frac{1}{2}$d.

The *ſcudo de vellon*, an ideal money employed in computing the revenues of the crown; it is worth ten rials, or half a hard dollar, 2s. 1d.

The *ducat*, another imaginary money which ſerves for reckoning the revenues of individuals, and worth eleven rials, or 2s. $3\frac{1}{2}$d.

We ſhall ſay nothing of certain other ideal monies peculiar to different provinces, ſuch as *la libra* of Valencia, Catalonia, &c.

Spain has been tolerably conſtant in her abſtinence from changing the ſtandard of money, convinced that the ſlighteſt variations, the leaſt miſtruſt on this head, would have a dangerous effect on operations of commerce in general, which draws from the Spaniſh poſſeſſions the greateſt part of the metals it employs. Nevertheleſs in 1737, the court of Madrid, having obſerved that the great piaſtre had only a value proportioned to the difference which then exiſted between the gold and ſilver coin, increaſed it to twenty rials. The equilibrium intended to be eſtabliſhed between theſe two metals was again deſtroyed, the value of gold being no longer in proportion to its abundance. There was too great an advantage in exporting it in preference to ſilver; ſo that if Spain had not applied a remedy, ſhe would in the end have been wholly deprived of that metal. Government, therefore, thought proper in 1779 to add a ſixteenth part to the former nominal

value of the gold coin, without changing the weight or ſtandard. By this operation, the *quadruple*, or *doblon de aocho*, which before was worth but fifteen great piaſtres, was increaſed to ſixteen, and all the other gold pieces in proportion. The nations which poſſeſs precious metals give laws to the reſt with reſpect to the ſtandard of their money; and thoſe who do not follow them muſt ſooner or later be the victims of their obſtinacy. This juſt obſervation, conſtantly confirmed by experience, determined our miniſtry ſhortly after to increaſe the value of gold coin without altering its denomination.

There is in Spain a ſovereign court which regulates and decides affairs relative to coin, under the title of *real junto de commercio, moneda, minas*, &c. it is compoſed of one member of the council of Caſtile, two of that of the Indies, and ſome of the members of the council of finance; and is as independent in its circle as the other ſovereign councils of the monarchy.

CHAP. IV.—*Council of war, and its attributes.—Military rank.—Of the Duke de Crillon.—Infantry.—Method of recruiting.—Quintas.—Militia.—Cavalry.—Scarcity of good horſes.—Artillery.—Engineers.—Military education.—Of Count O'Reilly.—Military rewards.*

THE council of war is at the ſame time a tribunal and a permanent board of military adminiſtration; the King commonly conſults it on iſſuing orders relating to his troops. Until the reign of Philip V. this council appointed the ſuperior military officers. But the Bourbon family, laying aſide by degrees every impediment that hindered the exerciſe of power, aſſumed this prerogative of the council of war. The King names to all military employments, upon the preſentation of the inſpector of each army. The inſpectors adopt military meaſures on many occaſions without the interpoſition of the council of war; but, for the ſake of form, ſuch as are taken without its concurrence receive its ſanction. Thus it was, that our parliaments regiſtered generally without demur the edicts of the King. Sometimes indeed they pretended a ſhadow of oppoſition to his will. But even this feeble reſtraint to arbitrary power is beyond the force of the council of Spain. Deſpotiſm there is neither irritated nor provoked to exceſs by any lawful obſtacle. There is no rallying point againſt it. If it be but moderate, in ſpite of predictions, it may yet endure for a length of time.

The chief functions of the council of war are, to adminiſter juſtice to thoſe who are in a military capacity, and bring their cauſes before that tribunal. It is divided into two chambers, or *ſalas*, the *ſala de govierno*, and the *ſala de juſticia*. The former is eſpecially employed in matters of adminiſtration. It has for counſellors the inſpectors, who are the moſt ancient captains of the body guards, and the oldeſt of the two colonels of the guards.

The *ſala de juſticia* is confined to litigations. If parties are diſſatisfied with its deciſion, they may require the other chamber to be joined to it to examine the cauſe anew.

According to treaty, the cauſes of ſtrangers are carried by appeal to the council of war; and foreign nations who have intercourſe and connexions with Spain, particularly the French, derive great advantages from this tribunal, the equity of which is rarely prevented by national prejudices; without being more acceſſible than the others to the ſolicitations of favour or corruption, it appears to be much more open to reaſon. In my frequent tranſactions with it I have had great room to admire its wiſdom and juſtice; and could wiſh, that, for the intereſt of our commerce, the citizens of France may always preſerve its members for ſupreme judges.

The

The higheſt military rank in Spain is that of *Captain-general;* which is equal to that of Marſhal of France, and not incompatible with it; ſince theſe honours were united in the perſon of Marſhal Berwick. This preferment is not eaſily obtained in Spain; it was confined in 1785 to two perſons in the army, the Count de Aranda and the Duke de Crillon. At the end of 1795 there were ten, three of which had been recently created; this number was ſhortly after reduced to nine *, by the death of the conqueror of Mahon. His poſterity is now in exiſtence. What will it ſay of him? His family will long ſpeak of the qualities of his heart, his friends of thoſe amiable points which cauſed his ſociety to be courted, and excuſed the trifling follies naturally conſequent on a lively temper and an eaſy character. As for hiſtory, it will ſay, Crillon merited the title which for ages has been an appendage to his name, he was a brave man not on *ſuch a day* alone but conſtantly. He had had a long experience, but leſs poſſibly of the military art than of the dangers of war. He was active and indefatigable. By his humane diſpoſition, by his engaging and familiar manners he conciliated the minds of the ſoldiery. His example recommended to them, at the ſame time, both true courage and gaiety. He was brilliantly fortunate in having, like the Cardinal de Richelieu, effected the capture of a fortreſs that had been deemed impregnable, although he failed before another which experience has ſtamped with that character. If he was the ſport of the paſſions of his ſatellites, and perhaps of his own, he yet, at leaſt, diſplayed that energetic conſtancy, that pertinacity, which levels and overcomes all obſtacles. In the military memoirs which he has left behind him, without being aware of it, he has faithfully delineated his own character; in them precept is ſupported by example, his frank honeſty is diſtinguiſhable, his undiſguiſed benignity, and even the pleaſing diſorder of his fancy.

Next to the captains general, rank, as in France, the lieutenants-general, field marſhals, and brigadiers; three claſſes of general officers which the war with France cauſed the number of to be greatly augmented.

In 1788 Spain had forty-ſeven lieutenants-general. In 1796 as many as one hundred and thirty-two. At preſent there are no more than eighty-one. The number of field-marſhals in 1788 was ſixty-ſeven; in 1796, one hundred and ſixty. At preſent there are one hundred and twenty-ſix.

In 1788 the Spaniſh infantry conſiſted of forty-four regiments of two battalions each, without including the Spaniſh and Walloon guards, each containing four thouſand two hundred men, in ſix battalions. Of theſe forty-four regiments thirty-five were Spaniſh, two Italian, three Flemiſh, and four Swiſs.

One of the Italian regiments has been diſbanded, ſo that there now remains only the Neapolitan regiment.

The three Flemiſh regiments, called the Little Walloons, (Flanders, Bruſſels, and Brabant,) have been incorporated into the national regiments.

The Swiſs regiments have been increaſed from four to ſix.

The national regiments have been augmented by fourteen new ones, two of which, the volunteers of Terragona and of Girone, were created in 1792, and the twelve others during and ſince the war with France.

The eighty-eight battalions in 1788, at ſix hundred and eighty-four men each, would have made the infantry amount to 60,192. However I frequently heard it repeated, during my firſt reſidence in Spain, that there were ſcarcely 30,000 in actual ſervice.

* At the end of 1801 only ſeven remained, including the brother-in-law of the Prince of the Peace, the Marquis de Brancifate, but excluſive of him made ſuperior, even to the Captain-general, through the favour of the King, under the title of Generaliſſimo of the Army.

The laſt war demonſtrated, that it was capable of greatly increaſing even the former number.

A ſhort time previous to the declaration of war, a new form was given to the Spaniſh infantry. Each regiment was compoſed of three battalions, two of which took the field, and one remained *in garriſon*, ſerving as a depôt for furniſhing recruits, and deficiencies ariſing in the two others. The two firſt ſhould have each five companies of 177 men each, one of which grenadiers, and another chaſſeurs. Their complement in peace was 700, and in war 800 men each. On my arrival in Spain in 1792, this new regulation had been recently ſketched out, and only one regiment, at that time, had a third battalion. The greater part of theſe regiments at the beginning of the war were compoſed of ſcarcely 1000 or 1100 men. In a great number, the firſt battalion could not be carried to its complement of 800 men, without diſfurniſhing the ranks of the other two. The battalions ſent to the frontiers comprized four companies of muſqueteers of 160 men each, and one of grenadiers of 120, total 760.

Each company in the Spaniſh regiments had a captain, with the peace appointment of 700 rials per month; a firſt lieutenant with 400, a ſecond lieutenant with 320, and an enſign with 250 rials per month. There were two enſigns in the foreign regiments.

Each ſoldier received 11 quartos per diem, (about 3½d.) out of which two were retained for linen and ſhoes, ſeven for their meſs, and two for other neceſſaries. They were new clothed every thirty months, and every fifteen months a new pair of ſhoes, two pair of ſtockings, and two ſhirts were delivered them.

It is eaſily perceivable, that in war theſe allowances muſt neceſſarily be greater.

If the two firſt battalions of the forty-four regiments had been complete, Spain would have had an army of 70,000 men; but they were very far from being ſo in 1792. At the beginning of the war, and even before, every method that could be thought of for filling up the different complements was adopted, and twelve additional regiments were formed. If then we add to the firſt mentioned 70,000 men the ſtrength of the twelve new regiments of 19,200, the 30,000 militia, and the 8400 of Walloon guards, Spain will have had in arms 127,600 infantry. But as well as that the greater part of theſe regiments could not be filled up to the war complement, a conſiderable deduction is neceſſary for the garriſon of Madrid, and to guard different places in the interior: ſo that the greateſt army Spain at any time had in the field could not have exceeded 80,000 infantry, not including, however, in this number 20,000 peaſants which were armed, and incorporated for the ſervice of the campaign of 1795.

It is not long ſince a part of this infantry was abroad. In 1782 thirty-ſix battalions were in America. Since that time permanent corps have been eſtabliſhed there, and at the cloſe of 1792 there were ſcarcely any battalions out of Europe. I ſay nothing of the places which Spain poſſeſſes on the coaſt of Africa, *Ceuta*, *Mili la*, *El Penon*, and *Alhucemas*; theſe places, known under the name of *African Preſidencies*, form a diſtinct government, and are maintained by troops belonging to the European army.

The means of recruiting this army are very confined. The Spaniſh nation, brave as it is, has for ſome time had a diſlike to the foot ſervice. Each regiment finds a difficulty in procuring men; the colours are raiſed in places in which it is ſuppoſed moſt dupes and libertines are aſſembled, and thus, as in France, the regiments are formed by the diſorders of ſociety. The ſoldiers of our regiments, impelled by their inconſtancy to paſs the frontiers, uſed to take advantage of the gorges of the Pyrenees to deſert and engage themſelves to Spaniſh recruiters. Foreign regiments in the ſervice of Spain were recruited at the expence of ours; and as the Spaniards are void of that reſtleſſneſs which characteriſes their neighbours, and induces them to wander to every part of

of the globe; and beſides the French army being much more conſiderable than that of Spain, all the inconvenience of the proximity of the reſpective garriſons was on the ſide of the French; hence the court of Madrid has been ſolicited in vain to eſtabliſh a cartel for reciprocally giving up deſerters; all that it would liſten to was, that each ſhould reſtore the arms, horſes and baggage of deſerters.

It is true there is a ſecond method of recruiting the army called the *quintas*, which reſembles the drawing for the militia, but which in Spain is perfectly diſtinct, both having exiſtence, the one for filling up the companies of the regular troops, the other for the provincial regiments. The ordinance of 1705 enacts, that for the firſt, lots ſhall be drawn in each village for one perſon in five; but then the drawing of the militia ſhall be ſuſpended. This undoubtedly is the etymology of the word *quintas*. As it always happens, the thing is changed and the word remains. The *quintas* do not at preſent require ſo great a number; and as the people have on ſome recent occaſions ſhewn how odious it was to them, government has recourſe to this expedient only in the laſt extremity. She refrained from enforcing it in the American war, but had recourſe to it twice in that with France.

Beſides theſe regiments of infantry Spain has forty-two of militia, diſtributed in the provinces of the crown of Caſtile. They are aſſembled only during one month in the year, in the principal place of which they bear the name; and for that time the officers and ſoldiers receive pay. It were needleſs to ſtate that they are paid alſo in time of war, when they replace the regular troops in garriſons, or join the army, of which they certainly do not form the leaſt valuable part: this was ſufficiently evinced in the war with France, when eighty-four companies of grenadiers and light infantry, comprizing 6,300 of their number, were marched to the frontiers. In time of peace, excepting their month of aſſembling, they remain in their villages and follow their reſpective occupations. Theſe regiments all conſiſt of one ſingle battalion of 720 men, except that of Majorca which has two, and muſt always be complete. As ſoon as a ſoldier of the militia dies, deſerts, or is diſcharged, lots are drawn in the village whence he was taken, to replace him.

Theſe regiments of militia have a particular inſpector. Their colonels are choſen from among the moſt diſtinguiſhed gentry of the diſtrict; and their authority is very extenſive over the men. They have the power of inflicting puniſhments, and there is no appeal from their ſentences but to the King, through the medium of the council of war. Few ſtates in Europe have a better regulated body of militia; or which more deſervedly ſuſtains the reputation of valour, aſcribed to the nation.

The Spaniſh ſoldiers have long been juſtly renowned throughout Europe for their cool and perſevering courage, and the reſolution with which they ſupport labour, fatigue, and hunger. Thoſe of our countrymen who ſaw them at Minorca and before Gibraltar, do them complete juſtice on that head, and thoſe who in the laſt war took revenge on them for their tranſitory ſucceſſes in the Rouſſillon, and on the banks of the Bidaſſoa, ſufficiently well underſtand the intereſt of their glory, to allow that, on moſt occaſions, they met in the Spaniards with enemies worthy of their courage.

Even the officers, reſpecting whom while I was in Spain I heard the moſt ſevere remarks, in the courſe of this war have conſtantly manifeſted both courage and talents. And here let us obſerve, that if the Spaniards have in any way degenerated, it is to be imputed to circumſtances foreign to their character. Courage and military talents require almoſt continual aliment. A long peace may effect a change in the martial ſpirit of the moſt valourous nation. And although Spain has taken a part in all the wars of this century, it may ſtill be ſaid, that, ſince thoſe of Italy terminated in 1748, her troops have made no real campaigns. The Spaniards themſelves preſume not to give this name to

the ſhort war with Portugal, in which they encountered but few obſtacles and little danger. The expeditions to Algiers in 1774, and Buenos Ayres in 1776, were ſoon ended; and afforded but few opportunities for the diſplay either of courage or experience. Add to this as an apology for the Spaniſh officers, that the life they lead is only calculated to ſtupify their faculties. Moſt of their garriſons are ſolitary and ill provided, without reſource either for inſtruction or innocent pleaſures; the officers have either no leave of abſence, or ſeldom obtain it, even to regulate their private affairs. It is undoubtedly a means of making excellent officers of thoſe who are obliged uninterruptedly to attend to the duties of their profeſſion. But man has always need of a ſtimulus to excite him, and this obſcure and monotonous life, unrelieved by any manœuvres on a grand ſcale, by any large aſſemblages, finiſhes in paralyzing all activity, or diverts the mind to improper objects. It has beſides the inconvenience of rendering the ſervice leſs deſirable, and keeping from it thoſe to whom a ſmall fortune or a liberal education offers other reſources. The Spaniſh army however has lately undergone an advantageous reform in this reſpect. The different ſchools that have been eſtabliſhed, furniſh it with perſons of diſtinguiſhed abilities. A martial ſpirit has been awakened in the nobility of the firſt diſtinction, who embrace the profeſſion of arms; and ſome of its members, renouncing the pleaſures and idleneſs of the capital, gave their countrymen during the laſt war examples of devotion and courage worthy of imitation.

All I have ſaid of the infantry is applicable to the other corps of the Spaniſh army. It has eight regiments of dragoons conſiſting each of three ſquadrons. The heavy cavalry conſiſts of fourteen regiments, including the brigade of *carbiniers of Queen Mary Louiſa*, raiſed in 1793, and one of Spaniſh huſſars formed in 1795. Beſides theſe it has a corps of royal carabineers which has a perfectly different organization.

Each regiment of cavalry is compoſed of three ſquadrons, excepting two which has four; each ſquadron conſiſting of 100 men in peace, and 180 in time of war.

Were the different corps complete, Spain would have an army of 11,880 horſe. I have been however aſſured, that in 1776, at the approach of a war, which ſoon after took place, ſhe had no more than 8000 effective horſe. In time of peace, the heavy cavalry and dragoons are far from having their complement of men; and of this reduced number 80 are diſmounted.

The conſequence is, that the cavalry is leſs agreeable than it otherwiſe would be to the Spaniards, becauſe the new recruits remain three or four years on foot, waiting for their turn to have ſpare horſes.

How comes it that there exiſts ſo great a ſcarcity of horſes in a country, which, under Philip IV., could have furniſhed 80,000 for military ſervice, a contingent to which almoſt all the provinces could then have contributed; for Andaluſia was not the only one renowned for the beauty of its horſes. Pliny praiſes thoſe of Gallicia, and the Aſturias. Martial, thoſe of his province, Arragon, &c. But the multiplication of mules has almoſt annihilated the race of good horſes in the two Caſtiles, in the Aſturias, and Gallicia.

In order to obtain a large number of theſe indefatigable animals whoſe utility and length of ſervice more than compenſate their mean appearance, the fineſt mares in the kingdom are excluſively ſet apart for breeding them in every part of Spain. Notwithſtanding this the ſupply is inſufficient for the demand, which is every day increaſing, ſo that Arragon, Navarre, and Catalonia are ſupplied by a leſſer ſpecies from ſome of the French provinces. The number imported is ſo conſiderable that it may be fairly rated at 20,000 annually, without danger of exaggeration. It is evident that the extravagant multiplication of mules is the cauſe of the degeneracy of horſes, in the greater part of the

the provinces of Spain; for Aadaluſia, where the laws prohibit the covering of mares by aſſes, is the only province in which the horſes retain their original beauty. And one would be led to imagine that even theſe, although they may have loſt nothing of their life, figure, and docility, have yet loſt ſomewhat of their vigour. For, from the account of our beſt officers of cavalry, nothing can be more brilliant than the firſt charge of Spaniſh cavalry, nay, even the ſecond, but at the third their horſes are ſpent.

Hence it appears, and it is allowed by all impartial Spaniards competent to give an opinion, that the beſt racers have loſt ſomewhat of their ſtrength. They have no other method conſequently to renew it but by croſſing the breed.

In the interval of this complete regeneration, ſome grandees on their own eſtates, and the King at Cordova, and at Aranjuez, are ſufficiently occupied in the preſervation of the fine race which remain. Some ſtuds of horſes have made their appearance at Madrid, and at the different royal ſeats. Should this faſhion become general, ſtuds of mules will be out of vogue, and a greater number of people will find themſelves intereſted in multiplying and perfecting the breed of horſes.

Already has the Prince of the Peace, who appears to be ſeriouſly intent on whatever may contribute to the proſperity of the ſtate, attempted an experiment which probably may occaſion a renewal of the excellent breed of Spaniſh horſes. He has cauſed to be brought from the breed of Normandy a hundred handſome mares, for the ſtuds of Cordova and Aranjuez. Spaniſh naturaliſts pretend, that, from the union of our Norman mares with the Spaniſh ſtallions, foals will be dropt uniting the ſhape and ſtrength of the female, with the beauty and ſwiftneſs of the male. Analogy drawn from ſimilar conſequences in other animals ſeems to ſupport the opinion, but experience, the beſt teacher, muſt determine as to the effect. The experiment however, without being very coſtly, may eventually be uſeful, and poſſibly remunerate Spain for the acquiſition we are about to make from the croſſing of ſheep of the Spaniſh breed. Thus it is that great nations, rivals without being jealous, renouncing excluſive endowments, and multiplying benefits, avenge themſelves one of the other in a beneficial and laudable manner.

Nature, which has been ſo bountiful to Spain in all the neceſſaries and comforts of life, who denies her ſcarcely any of the enjoyments of peace, has not been ſparing towards her in the materials of war. She is prodigal to her of iron, copper, lead, and ſaltpetre; and the excellence of her artillery enables her to diſpenſe with foreign dependance.

It was in 1710 that the Spaniſh artillery took its preſent form. At that period it was collected into one regiment, compoſed of five battalions, which have recently been extended to ſix, without including the cadets, who are brought up at Segovia.

This regiment has 304 officers, and its commandant-general for colonel, who, at the ſame time, is inſpector of the corps.

Count Gazola, recalled from Naples by Charles III. when he aſcended the throne of Spain, began the improvements in the artillery, which had been neglected under Ferdinand VI., like ſeveral other branches of adminiſtration. The new monarch requeſted the court of France to ſend him a founder. M. Maritz was accordingly ſent, and made ſeveral great alterations in the Spaniſh founderies. He adopted the method of caſting the cannon ſolid, and boring them afterwards. Envy created him many obſtacles, and ſome unſucceſsful efforts ſeemed to juſtify the ill will with which he was received; for many of the cannon caſt in this new manner were found defective. He was moreover unpardonably culpable in caſting a great quantity of Mexican copper, without aſcertaining whether the metal was ſufficiently ſolid. Moſt of theſe cannon failed in the proof, and the clamour againſt him became general. His natural courage, and the protection

protection of the King, supported him against the tempest; and he continued to employ his best endeavours in the service of Spain, although he despaired of ever being useful to it. At length he quitted it, leaving behind him his method and principles, with the precautions and improvements he had been taught by experience. At present, even his enemies acknowledge that he has been of real service to the Spanish artillery. The manner in which it was served in the war with England, particularly at the siege of Mahon, and even during the war terminated by the treaty of Basle, have proved that Spain in this department of the military art has not been retrograde.

Count Gazola, an Italian, was at his death succeeded by Count de Lascy, an Irishman by birth, who had been successfully employed on some missions of a political nature in the north, and whose being placed at the head of the artillery as a recompence, excited some surprise. At his death, in 1792, Count de Colomera obtained his place, formerly Don Martin Alvarez, who presided for a time at the siege of Gibraltar. Upon his resignation, Don Joseph de Urratia took his place, who commanded the Spanish army at the time of the conclusion of the treaty of peace at Basle, and was afterwards made captain-general. His military talents secured him the unanimous suffrage not only of his own country, but even of the enemies to which he was opposed. Wherever wisdom and information are necessary, he is in his element.

The Spanish artillery has many distinguished officers. The superior merit of General Sertosa, who commanded at the siege of Mahon, has been acknowledged in foreign countries.

Spain produces more lead than is required for her arsenals. Its principal mine, that of Linarez, in the kingdom of Jaen, yields much more than is sold in Spain for the King's account; and notwithstanding the others be imperfectly worked, not yielding more than 8000, Spain can yet export a thousand tons per annum.

There are several copper mines also in Spain. That of Rio-Tinto is the most productive; it supplies a part of the artillery. But the copper of the Spanish Indies is also laid under contribution. That of Mexico and Peru is refined and manufactured in the two royal founderies of Barcelona and Seville. The cannon cast there have two-thirds of Mexican copper to one of that of Peru.

Biscay and the Asturias furnish the iron necessary for the Spanish artillery. Cannon made of this metal are cast at Lierganes and Cavada. Before the war with France the cast iron came from the forges of Eugui and Muga. In the phrenzy of conquest these two establishments were destroyed by our armies, as if we were combating an irreconcileable enemy, whose means of defence we were desirous of annihilating. Since policy so frequently occasions war, it ought not only to pardon, but minutely directing its operations, to act as a corrective to the heedlessness of elated victory. Since the peace Spain, taking advantage of this lesson, has established new forges in places at a greater distance from her frontiers, and a manufactory of fire-arms at Oviedo. She has besides manufactories for musquets at Placentia and Ripol; and, lastly, one of sword-blades at Toledo, which has been twenty years established, and which even at its first setting off promised to revive the ancient reputation of the blades of that city.

Spain is one of the richest countries in Europe in saltpetre. La Mancha and Arragon had the reputation of furnishing this article of an excellent quality. A French company had undertaken the preparation of it, and for this purpose sent M. Salvador Dampierre to Spain. This agent, though crossed in his plans, failed in his undertaking. On a piece of ground near Madrid he made some unsuccessful experiments, by which government wisely profited. The ground in question is found to contain saltpetre of a quality superior to that of La Mancha and Arragon; in consequence of which a manufacture

nufacture was begun there in 1779, which was entruſted to the manngement of Don Roſendo Parayuelo, one of the commiſſioners-general of rents. In 1785, it was one of the moſt curious eſtabliſhments in the capital; it kept four thouſand men in employ. After two boilings the ſaltpetre is fit for making powder. The firſt boiling requires eight or ten days, but a few hours are ſufficient for the ſecond. Water is conveyed in abundance to this manufacture by ſubterraneous pipes. Neither has wood been wanting ſince this opening affords a conſumption for that, which the inhabitants of the hills of Guadarrama did not before even give themſelves the trouble of cutting.

The earth which produces the ſaltpetre recovers itſelf with ſurpriſing promptitude. The *caput mortuum* is brought to the environs of the manufacture; and ſometimes in leſs than a month the air, impregnating it afreſh with nitre, renders it fit for a ſecond operation. It has been remarked, that after the continuance of a certain wind, the neighbouring ſoil becomes whitened, as if ſnow had fallen upon it. In 1792, I found this manufactory ſurrounded with walls, and in full work.

The ſaltpetre is ſent to the powder-mills at Alcazar, St. Juam in La Mancha, to Villa Fetiche in the kingdom of Valentia, to Murcia, and Granada, the employment of which mills has been conſiderably increaſed ſince the eſtabliſhment of the manufacture at Madrid. When in its infancy, the proprietors engaged to furniſh government annually with eleven thouſand quintals. During the war they exceeded their engagement, and the director flattered himſelf, in 1784, that the eſtabliſhment would ſoon yield thirty thouſand quintals a year. The manufactory, however, could not ſupply the enormous conſumption of powder at the camp of St. Roch: and although 35,000 quintals were ſent thither when the attack was to be made on Gibraltar, government was obliged to haſten the arrival of more from Genoa, France, and Holland. At preſent it wholly ſupplies the demand of Spain, and will ſoon become a new branch of exportation.

Hitherto the quality of this new powder is inconteſtably good; it is ſaid to carry twice as far as common powder; for which reaſon Charles III. and the infants made uſe of no other in ſhooting; and the King of Naples ſome years ago uſed to receive a ſmall quantity of it by every weekly courier from Madrid. Spaniards as well as foreigners were eager in the purchaſe of it. I ſaw our admiral Guichen at the time of his viſit to the Eſcurial, where he had an opportunity of witneſſing the excellence of it. He begged half a ſcore pounds of it of the King as a favour; and as ſimple in his manners, as he was brave and religious, with no other luggage than his night-cap, his breviary, and his ten pounds of powder, he ſet off on his journey to Madrid.

Spaniſh America will ſoon be independent of the mother country with reſpect to this commodity. The miniſter Galvez ordered three manufactories of ſaltpetre to be eſtabliſhed at Lima, Mexico, and Santa Fé de Bogota. For the improvement of theſe manufactories he ſent the ſame Salvador Dampierre to America, who failed in his attempts in Europe. Thus the Spaniſh colonies poſſeſs within themſelves theſe means of defence. Will not the metropolis have cauſe to repent this? The ſeeds of diſcontent, which at different intervals for ſeveral years back, have ſhewn themſelves in ſuch an alarming manner, have they been entirely ſtifled in their growth?

The corps of engineers is ſeparate from the *artillery*, as is the caſe in France; it was not eſtabliſhed before the year 1711. It conſiſts of ten directors, ten colonels, twenty lieutenant-colonels, thirty captains, forty lieutenants, and forty ſecond-lieutenants: in all, one hundred and fifty officers, who are indiſcriminately occupied in the ſuperintendance of fortifications and civil architecture. There is but one commander for each of theſe works; and he who preſides over the latter retains at the ſame time his rank in the army, although he cannot properly be conſidered as a military man. The perſon

who at preſent hold the place is truly a military character, General Urrutia. It was previouſly held by Don Franciſco Sabattiné, an Italian architect of ability, who at the ſame time was a lieutenant-general in the army, he filled this ſituation for twenty years before his death. In right of his ſtation, General Urrutia has under his direction the three academies at Barcelona, Cadiz, and Zamera, eſtabliſhed for the inſtruction of thoſe intended for engineers, as well as ſuch cadets or officers in the army as may be ſtudious of learning the mathematics.

In 1796 a new deſcription of engineers was formed, under the title of *Royal Corps of Coſmographic Engineers of the State*; it has, like the other, ſomewhat of a military frame, its director and four principal profeſſors holding the rank of captain.

As to the diſtinguiſhing marks of the different ranks in the various regiments, I ſhall only obſerve that the general officers have an uniform very much reſembling that worn formerly by French officers of the ſame rank. The colonels, lieutenant-colonels, and majors wear no epaulettes. The captains wear two epaulettes; the lieutenants, one upon the right ſhoulder; and the ſecond lieutenants, one upon the left. All officers who are not at leaſt field-marſhals are obliged continually to wear their uniform even when they appear at court. Theſe uniforms are white for the national infantry, except the Spaniſh and Walloon guards, who wear blue. The uniform of the cavalry is indifferently blue, green, red, or yellow. The artillery and the Swiſs regiments wear blue. In every regiment the men wear its name on their buttons; this is for the moſt part that of a town or a province: the Swiſs regiments alone bear the name of their colonel. According to ſome late regulations, no perſon can become an officer without having been a cadet.

An eſtabliſhment has been formed about twenty years, very well calculated to produce officers of merit, I ſpeak of the military ſchool, which we have before noticed more than once. Its founder, Count O'Reilly, poſſeſſed the talent ſuited to the preſidency of a ſimilar eſtabliſhment, and making it proſper.

Born in Ireland, of catholic parents, he entered the Spaniſh ſervice very young, and in Italy ſerved in the war of the Auſtrian ſucceſſion. It was there that he received a wound which cauſed him to limp the reſt of his days. In 1757 he was under the command of General Laſcy, and until 1759 when he joined the French army. Marſhal Broglio conceived a particular eſteem for him, and recommended him to the King on his return to Spain. He afterwards made a campaign in Portugal, where he diſtinguiſhed himſelf. Peace being made, he was made field-marſhal, and lieutenant-commandant at the Havannah, whence he afterwards paſſed over to Louiſiana, the coloniſts of which province were refractory under the Spaniſh yoke. The means he exerciſed for reſtraining their inſurrection drew on his head the moſt bitter execrations. In the courſe of his long career O'Reilly experienced all the ſhades of favour and diſgrace. The affection which Charles III. entertained for him was for a long time inſufficient to protect him from the hatred of the people.

Few men have inſpired the ſame degree of enthuſiaſm and hatred. His conduct at Louiſiana, where his name will long be coupled with maledictions; and his unfortunate expedition to Algiers in 1774, cauſed him to be ranked among wicked men and bad generals; poſſibly he neither deſerved the one title nor the other. Skilful, inſinuating, active, even phyſically, notwithſtanding his lameneſs, and well acquainted, at leaſt in theory, with his profeſſion; he poſſeſſed at the ſame time the art of rendering himſelf neceſſary on different occaſions. After languiſhing in a kind of exile, not however without maintaining his dignity, he was made commandant-general of Andaluſia, and had his favourite bantling, the military ſchool, removed from Avila to Port St. Mary,

near Cadiz, his place of reſidence. In this command he diſplayed genuine talents for every branch of adminiſtration. He was not beloved; but he concealed his deſpotic character under the maſk of ſuch engaging manners, that he appeared to be obeyed leſs through fear than devotion, and was regretted when the implacable Lerena, who had had ſome ſharp altercations with him while intendant of Andaluſia, cauſed him to be removed to Gallicia. Upon the acceſſion of Charles IV., he thought he might again appear at court, but was received under circumſtances more mortifying than befitted his confidence, and was ordered to the kingdom of Valentia. Ever indefatigable, he ſought there to render himſelf of ſervice in propoſing plans, and giving his advice, at the time that war broke out in France. The command of the army of Catalonia was entruſted to his friend General Ricardos, who was alſo by deſcent his countryman, his father, an Iriſhman, having married the daughter of the Duke de Montemar. Ricardos, any more than O'Reilly, was no great favourite with the new court, notwithſtanding his talents and his long and uſeful ſervice. Ricardos dying, after ſome ſucceſs which juſtified his appointment, O'Reilly was named to ſucceed him. This unexpected triumph was his laſt. While on his march to take the command of the army, luckily for his fame, he died. Striking reverſes befell his ſucceſſor, the Count de la Union; young, brave, and full of ardour, but with all theſe qualities, without experience. Probably the ſame fate would have awaited O'Reilly; he was no more, and we gave him our regret. He ſurvived, however, the eſtabliſhment which he had founded; the military ſchool, after having produced diſtinguiſhed officers for the Spaniſh infantry, died away in his laſt exile.

The government does not forget the declining years of their military men. There is a corps of invalids in Spain, as well officers as ſoldiers; but the forty-ſix companies, of which it is compoſed, are diſtributed at Madrid, and in the provinces, where they perform an eaſy duty. Thoſe incapable of all ſervice form another corps of twenty-ſix companies, divided between Seville, Valencia, Lugo, and Toro. Both theſe corps are under the inſpector of the infantry.

In Spain there is no order of knighthood particularly deſtined to the reward of officers. Charles III., however, made a point of conferring on none but theſe the four military orders; yet without excluding them from that he has himſelf founded. But theſe favours depend entirely on his pleaſure, and not upon the length of ſervice. Other means exiſt of rewarding old officers; the King beſtows on them penſions, or rank on the ſtaff at his different garriſons.

Neither are their widows forgotten in his beneficent diſtributions. In 1761, he eſtabliſhed a fund from which they receive penſions according to the rank of their huſbands. Eighteen thouſand rials a year are paid to thoſe of captains-general, twelve thouſand to thoſe of lieutenants-general, and in proportion to the widows of petty officers. This fund conſiſts of a grant of 360,000 rials (4,090l.), anterior to its eſtabliſhment; a contribution of twenty per cent. upon what the King receives from the *ſpolios y vacante*, half a month's appointment paid once by all the officers of the army, and a deduction of eight maravedis from each crown of their pay; and all the property of officers dying without heirs, or inteſtate. Truly valuable inſtitution, and worthy of imitation, which by inſuring a ſubſiſtence to the widows of officers, without their ſtanding in need of credit to enforce their claims, greatly encouraged military men to marry. A nearly ſimilar plan has been adopted by the other claſſes of ſociety, even by artiſans.

The place of commandant-general of a province is an opening to general officers, but obliges them to almoſt a perpetual reſidence; for in Spain, biſhops, intendants, governors, and commanders reſide where they are employed, notwithſtanding the reſi-

dence of the ſovereign, and the capital have the ſame temptations for ambition and diſſipation as in other countries.

All the commandants of provinces bear the title of *captain-general*, which however muſt not be confounded with that of the firſt military rank. They ſometimes, but improperly, receive the title of viceroy alſo, which regularly belongs to none but the commandant of Navarre, and thoſe of the principal provinces of Spaniſh America.

The ſtations of theſe commanderies or captancies-general are, *Madrid*, for New Caſtile; *Zamora*, for Old Caſtile; *Barcelona*, for the principality of Catalonia; *Valencia*, for the kingdoms of Valencia and Murcia; *Palma*, for the kingdom of Majorca; *Pampeluna*, for the kingdom of Navarre; *St. Sebaſtian*, for Guipuſova; *Port St. Mary*, for Andaluſia; *Malaga*, for the coaſt of Granada; *Corunna*, for Gallicia; *Badajoz*, for Eſtremadura; *Ceuta*, for the preſidencies of Africa; and *Santa Cruz de Teneriffe*, for the Canaries.

None of thoſe idle appointments created by favour, to the injury of the finances of the country, formerly ſo common in France, are met with in Spain. Our neighbours hence have two abuſes leſs than we had to provoke a revolution, and which were in ſome meaſure the inſtigation of ours, this and the faſtidious diſplay of ſplendour which individuals of all ranks who held the chief places of the monarchy came to make at court. So dearly in every reſpect is a revolution purchaſed, that the philanthropiſt dwells with pleaſure on every circumſtance which tends to remove to a diſtance the dangerous neceſſity of ſuch a meaſure. Let us now proceed to the Spaniſh navy.

CHAP. V.—*Spaniſh navigators, ancient and modern.—Departments of the navy.—Officers of the navy.—Sailors.—Conſtruction of ſhips.—Naval force.—Its appointments.—Barbary regencies.—M. Florida Blanca.*

THE Spaniſh navy for more than half a century acted the firſt part upon the theatre of Europe, whether the ſpirit of diſcovery with which it was actuated be conſidered, or its character in war. The world will never forget the names of *Colon*, *Magellan*, or *Cano*, nor the power which encouraged their illuſtrious enterprizes. Neither will the names of *Quiros* and *Mendana*, leſs known although not leſs deſerving of diſtinction, for their vaſt knowledge and ſagacity, which modern obſervations have done juſtice to, be ever obliterated from the memory of the geographer. At the ſame period their navy could equally boaſt its warriors; but they diſappeared with the *invincible armada*; and under the reigns of the three Philips it ſcarce preſerved a veſtige of its former fame. Charles II. left the navy, as well as the other departments of the monarchy, in the moſt deplorable ſtate.

The efforts made by the Spaniards during the war of ſucceſſion reſtored a momentary activity in naval affairs; but their ſkilful ſeamen were irremediably loſt. In the two laſt reigns they have endeavoured, and not altogether ineffectually, to revive this part of the glory of their nation. I ſhall ſay nothing of *Don Jorge Juan*, or *Don Antonio Ulloa*, who accompanied Condamine in his expedition; the object of it was only to make aſtronomical obſervations. The Spaniards have more recently undertaken voyages of diſcovery, or for the purpoſe of taking the bearings of coaſts hitherto badly known; but theſe appear to be kept back from the public eye, an affectation for which they certainly deſerve the reproof of the lovers of ſcience; although, in ſpite of their jealous ſecrecy, the details and reſult of the greater part of their voyages are pretty well known to the world.

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In 1768, a veſſel which ſailed from Montevideo, coaſted along that little frequented ſhore which intervenes between the river of Plato and the ſtraights of Magellan, and thence proceeded to reconnoitre the Falkland iſlands, a cruize which threatened to cauſe a rupture between England and Spain.

In 1769 and 1770, by orders of the Marquis de Santa Cruz, viceroy of Mexico, and under the direction of *Don Joſeph Galvez*, who was then fitting himſelf, by his attention to the intereſts of his country, for the office of chief miniſter, which he has ſince filled with ſo much honour to himſelf, two expeditions were diſpatched at the ſame time, the one by ſea, and the other by land, from San Blas, a port in Mexico, under the 21° of north latitude, to examine the port of Montirey, which, notwithſtanding it was laid down in the charts with tolerable exactitude by Vezcayno, who diſcovered it in 1692, the naval detachment had great difficulty in finding again.

About the ſame time, other Spaniſh mariners, namely, *Don Philip de Gonzales*, and *Don Antonio de Monte*, the one commanding the St. Laurence, of 70 guns, and the other the Roſalie frigate, of 36, ſailed from Callao de Lima, on an expedition to the iſlands of the South Sea, and fell in with Eaſter iſland, not for the firſt time, (for the merit of the diſcovery is indiſputably due to Roggewein, the Dutchman,) but before Cook and Peyrouſe; and under conviction of its not having been before diſcovered, took poſſeſſion of it in the name of the King of Spain, and erected croſſes on three little hills, giving it the name of *San Carlos*.

In 1775, Bucarelli, viceroy of Mexico, diſpatched two officers from San Blas, Don Juan de Agala, and Don Franciſco de la Bodega, to take bearings of the coaſt of California, as high up as to the 65th degree. They were, however, unable to proceed higher than 57 degrees, and returned, after having taken the plans of different ſmall havens on the coaſt, ſuch as Los Remedios, de Los Doleres, &c. Don Antonio Morelle, who afterwards obtained, poſſibly on too ſlight grounds, the title of the Spaniſh Cook, was on this voyage pilot to the veſſel commanded by Don Juan de Agala.

He ſince, at his individual expence, has made ſeveral voyages, which, on account of the difficulties he had to encounter, obtained for him ſome degree of reputation. He undertook more than once, in ſpite of the monſoons which reigned at the time, different voyages from the Philippines to the weſtern coaſt of America; and thus it was that in 1780 and 1781 he arrived from Manilla at San Blas on board the Princeſs.

It was well known alſo that the Spaniards had touched before Cook at Otaheite, the diſcovery of which belongs neither to our contemporaries, nor Commodore Wallis, nor even our Admiral Bouganville, whoſe relations reſpecting this iſland have taught us to ſpeak of it with the tendereſt emotion. It is to Quiros that we are indebted for the firſt diſcovery. It is ſeen in the ſecond voyage of Captain Cook, that the Spaniards left two of their countrymen there; but we have as yet very few details of his expedition, the work being yet in manuſcript.

There is yet a later voyage of theirs which has been publiſhed. It is that which *Don Antonio de Cordova* made in the *Santa Maria de Cabeza*, in the years 1785 and 1786. The anonymous author, who has given an account of it, under the title of, *Relacion del ultimo Viage al eſtucho de Magellanes in los anos* 1785 & 1786, and who appears to be well verſed in nautical knowledge, has added to it a deſcription of all anterior voyages, and extracts from ſeveral valuable manuſcripts which were not hitherto known *.

* M. Fleurieu, in a work, meritorious in every point of view, publiſhed in 1799 and 1800, entitled *A Voyage round the World by Captain Marchand*, treats both the ancient and modern navigators of Spain with ſome ſeverity; but the Spaniſh government, which principally deſerves theſe reproaches, in order to diſculpate itſelf and them, laying miſtruſt and jealouſy aſide, and imbibing the ſame deſires of propagating knowledge with the other powers of Europe, will doubtleſs ere long permit them to be given to the world.

Laſtly, ſtill more recently, a naval officer of talents, M. de Malaſpina, ſailed from Cadiz on a voyage round the world. His expedition was of the ſame intent with that of Peyrouſe; and as well as the unfortunate French circumnavigator, he departed furniſhed with proper inſtruments for all kind of obſervations. On his return to Cadiz he depoſited his manuſcript in the hands of Father Gil, a learned monk, who while employed in looking it over, and preparing it for the preſs, having in common with the captain, for a cauſe but too well known, incurred the anger of the court and its adviſers, was, together with him, put in priſon; the work was ſuſpended, and the ſatisfaction which the learned in Europe promiſed themſelves to enjoy was adjourned *ſine die**. How ſilly for ſuch as are calculated to go round the world, to give the hiſtory of the voyage, and enlighten mankind, to loſe their time in following court intrigues.

This is the extent of what the Spaniards have latterly effected to increaſe the extent of navigation. Their ſhips of war preſent them other palms to gather. Let us ſee what they have done, and what they are capable of, in this dangerous career.

Charles III. found the navy in an imperfect ſtate, notwithſtanding Ferdinand VI. had leſs neglected this than other branches of the adminiſtration, and notwithſtanding his miniſter, the Marquis de la Enſenada, be eſteemed its reſtorer. It is divided into three departments, thoſe of Ferrol, Carthagena, and Cadiz.

The firſt preſents real inconveniencies, in the unhealthineſs of the climate, and the frequent rains which retard operations in the port, from which no veſſel can ſail but with one particular wind. This department were perhaps better at Vigo, for the northern coaſt of Spain, the climate of which is very healthy, the ſoil fertile, and the harbour ſafe and ſpacious; the change has more than once been in contemplation; but arſenals and magazines muſt have been eſtabliſhed at Vigo, where at preſent there is none; the harbour, now an open road, muſt have been fortified at a very conſiderable expence; and, laſtly, its vicinity to Portugal, which has long been conſidered as the natural enemy of Spain, for no other reaſon, perhaps, than becauſe it is its neareſt neighbour, ſeemed a forbidding circumſtance. Theſe conſiderations of œconomy and policy have collectively prevented the execution of this project.

The department of Carthagena has many advantages over that of Ferrol. The ſafety of its harbour is known to a proverb among ſeamen, who ſay, *There are but three good ports for veſſels, the month of June, that of July, and the harbour of Carthagena.* This ſafety extends to the arſenals and dock-yards, which in a narrow and inſulated ſpace, may, if I may uſe the expreſſion common with the Spaniards, *be locked up by a ſingle key.* Carthagena is conſequently the port at which the greateſt number of ſhips are built, caulked, and careened. It poſſeſſes beſides an artificial dock, deſerving of admiration, even after ſeeing the famous *forme* at Toulon. Charles III., in 1770, eſtabliſhed there a corps of engineers for the navy, under the direction of M. Gauthier, of whom I ſhall hereafter ſpeak.

The department of Cadiz is, however, the moſt important of the three, from its favourable ſituation for the departure of fleets. As I mean to conduct my reader to Cadiz, where I reſided ſome time, I ſhall refer him to my account of it for the information I have been able to collect relative to its port, dock-yards, and arſenals, which will ſerve as a ſupplement to what I ſhall here ſay of the Spaniſh navy.

It is officered much in the ſame manner as that of France before the revolution. Inſtead of vice-admirals, there are captains-general, who enjoy the ſame honours as thoſe

* In 1797, it was expected that the voyage of Malaſpina would ſhortly be publiſhed. The expectation has not been ſatisfied, which has given riſe to an opinion that a different cauſe to that ſuſpected acts as a preventative to its publication.

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of the army. At preſent (1802) there are but two captains-general of the navy, the *Bailli de Valdis*, who has been miniſter of this department for fourteen years; and Don Juan de Langara, whom we have before noticed; but above them all, as well as above all the captains-general of the army, is one more highly privileged, for whom the rank of generaliſſimo of the navy has been created, I allude to El Principe de la Paz. Immediately after the captain-general, rank, as in France, the lieutenants-general, who were in 1788 ſeventeen in number. There were thirty in 1796, ten of which had been made the year before, at the concluſion of a war which had afforded but few occaſions of diſplaying their courage and capacity. At preſent there are but eighteen.

We have lately had an opportunity of judging of the value of ſeveral of them; *Admiral Mazaredo*, for example, who for more than a year that he reſided at Paris, charged with a miſſion of importance on matters relative both to politics and naval affairs, and who at preſent (1802) is diſplaying his activity in the department of Cadiz, where he reſides. *Admiral Gravina*, who commanded the Spaniſh ſquadron during the time of its anchorage at Breſt, and who ſo juſtly deſerved the praiſe laviſhed upon him by our admiral, for his conduct in the command of the auxiliary ſquadron at Saint Domingo. *Admiral San Domingo Grandellana*, whoſe zeal and capacity have advanced him to the miniſtry of the navy. *Admiral Don Juan Moreno*, who, in ſpite of the deplorable accident which befel two of his ſhips before Cadiz, did not yet forfeit the well-earned title given him by our ſailors, the witneſſes of his courage and his misfortune, of a *brave and reſpectable admiral.*

Beſide them may be placed ſeveral admirals who in former wars had acquired diſtinguiſhed reputation, and who have only needed opportunities to enhance it in the two laſt.

In this number are the *Marquis de Socorro* (formerly *Don Franciſco Solano*), known by that name for ſeveral voyages, in which he diſplayed conſiderable nautical abilities; and who had the command of the Spaniſh ſquadron, in 1783, which laid off the coaſt of Terra Firma, and which was deſtined to ſecond us in the deciſive attack of Jamaica in 1783, when a frigate brought us the news of peace; *Don Franciſco de Borja*, at preſent captain-general of the department of Carthagena; *Don Felix de Texada*, captain-general of that of Ferrol; Don Gabriel de Ariſtezabel, &c.

After the lieutenants-general of the navy come the commodores, who were no more than fifteen in 1788; they were raiſed to the number of forty-four at the end of the war in 1795, and are now reduced to thirty-four.

Among the commodores are many who do honour to the Spaniſh navy; ſuch as *Don Franciſco Munoz*, known for his boldneſs; *Don Thomas Munoz*, by his rare talents for hydraulic architecture; and *Don Antonio Cordova*, for misfortunes which his bravery but ill deſerved.

The Spaniſh navy has an intermediate rank between a commodore and a poſt-captain, which is that of brigadier; there were in 1788 forty-four of this deſcription; at the peace of 1795 fifty-five, thirty-two of which had been promoted for ſervice during the war. At preſent their number is forty-two.

The number of captains in 1788 was only forty-five; at preſent there are one hundred and twenty-three.

By this compariſon it is viſible, that whether war be fortunate or otherwiſe, it preſents the advantage of numerous promotions. But on an element ſo perfidious as the ſea, ſucceſs does not always attend upon courage and ſkill; and ſkill and courage yet deſerve reward.

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One rule, to which there are very few exceptions, is, that to acquire rank in the navy, it is neceſſary to have paſſed through the Garde-marine. This corps was eſtabliſhed in 1717; it conſiſts of three companies, divided among the different departments, each containing ninety-two cadets, for whoſe inſtruction there is an academy, compoſed of a director and eight profeſſors.

With theſe means of obtaining the theory of that difficult and perilous art, navigation, with the facility which the vaſt extent of the Spaniſh monarchy preſents of acquiring practical knowledge, from frequent and diſtant expeditions, malignity may find room to criticiſe with ſeverity the conduct of the officers of the Spaniſh navy; and we know that even in Spain this prerogative was freely uſed in the courſe of the American war.

It is not for me to form an opinion of theſe deciſions, I leave that to our ſea officers who in that war ſailed and fought by the ſide of their allies, from 1779 to 1782; let them declare if ſuch deciſions were not frequently dictated by prejudice and injuſtice. The war which Spain waged with us from April 1793 to the peace of Baſle in 1796, may make our opinions appear too ſevere, from their officers being judged by enemies. Yet, if the bay of Roſas be excepted, whence a ſmall ſquadron, commanded by the intrepid Gravina, defended with great zeal the citadel of the ſame name, and the little fort *Bouten*, and the port of Toulon, which the combined ſquadrons got poſſeſſion of, owing to treachery; where during this war did the Spaniſh navy ſhew itſelf to any advantage? Its own nation groaned and bluſhed for its inactivity. But we know that their irkſome ſenſations were participated by the navy itſelf, which was prevented ſhewing its value by the extreme circumſpection of the chief of its department; a wiſe and cautious man, better adapted to organize fleets during peace, than to ſketch out plans for their active ſervice in war; while in addition, happily for us, there exiſted in the combined fleets that want of intelligence which was to be expected between two nations, one of which haughty, although weak, is the leaſt of all others diſpoſed to crouch before the capriciouſneſs of arrogance; two nations momentarily united by intereſt, but which could but ill agree as to their object or plan of action.

As ſoon as this unnatural union was aboliſhed, to the great ſorrow of the one, and the complete ſatisfaction of the other, the Spaniſh navy inſtantly ſhewed itſelf diſpoſed to cancel the paſt errors of its government; and if in the ſucceeding war, in which ſhe beheld as her enemies thoſe who before had been her allies, it has failed of ſignalizing itſelf as it wiſhed, circumſtances alone were to blame.

It is well known that a conſiderable part of her navy having entered Breſt, at the particular deſire of our government, ſhared there the ſame fate with our own, and was for a long time blockaded by ſuperior force. But it cannot be forgotten, that otherwiſe, on every occaſion which offered, the Spaniſh ſailors gave ſatisfactory proofs of conſtancy and intrepidity.

The Engliſh, in particular, muſt recollect their long and fruitleſs blockade of Cadiz; the reception which they met with at the Canaries in 1797; before Ferrol in 1800; particularly their expedition againſt Cadiz in the month of October in the ſame year; and, laſtly, their vain attempt on the coaſt of Algeſiras in the month of June 1801, where the glorious efforts of our ſailors were ſo well ſeconded by the foreſight and valour of their allies; and, on our part, we ſhall not forget the manner in which they aſſiſted us recently, on our expedition to St. Domingo.

At any rate, the moſt ſevere judges will agree, that there exiſts much intelligence and theoretic knowledge in the Spaniſh navy. Recent proofs have been afforded of this,

this, in the works contained in the depot for naval charts at Madrid; and in works given to the world latterly by ſome officers in the navy, truly learned in their profeſſion, although but young, Meſſrs. *Mendoza*, *Guliano*, and the two brothers *Ciſcar*.

The officers of the navy are, with reſpect to military rewards, upon a footing with thoſe of the army. Vice-royalties, governments of provinces, or places in America, are indiſcriminately given to general officers of the army and thoſe of the navy. But the latter have, in the exerciſe of their profeſſion, means of enriching themſelves, which are looked upon as lawful in Spain, which they ſometimes abuſe, and which render leſs neceſſary *the bounty of the King*. This cupidity might be excuſed in conquerors; but what title does it deſerve when, as is pretended, it has been the cauſe of their failure of ſucceſs?

The ſailors are claſſed as in France, and divided among the three departments. The regiſters of the claſſes make the number of the whole amount to from 55 to 60,000. But a good fourth of this number muſt be deducted for thoſe unfit for ſea ſervice, and who cauſe their names to be inſcribed for no other purpoſe than to enjoy the privileges attached to the character of an inſcribed ſailor. Let the department of Ferrol ſerve for a ſpecimen, which furniſhed ſcarcely 15,000 ſeamen out of 20,000 inſcribed in the year 1792. And even of this ſmaller number, there are many on whom little reliance can be placed. The Catalans, for example, notwithſtanding they are good ſeamen, are very unfit for ſhips of war, from their being accuſtomed to the luttin ſails, with which they navigate to the Baltic, and even as far as Spaniſh America, and conſequently are aukward on board of veſſels differently rigged. They are moreover lofty, and rebellious, and prefer merchant ſhips, on board of which they meet with better treatment, and receive larger pay.

To rate the number of ſailors which Spain can furniſh higher than 36,000 to 40,000, would be an exaggeration. In 1790, when Spain was on the eve of a rupture with England, ſhe found it difficult to equip 32 ſail of the line; ſhe might, however, ſend a much larger number to ſea, provided ſhe were able to man them. Let us now trace the progreſs of the Spaniſh navy from the beginning of the reign of Charles III.

After the peace which followed the diſaſtrous war of 1761, Spain had no more than 37 ſail of the line, and about 30 frigates.

In 1770, ſhe had 51 ſail of ſhips, carrying from 112 to 58 guns; 22 frigates, 8 horcas, 9 xebecs, and 12 other ſmall veſſels; in all, 102 veſſels of war.

In 1774, ſhe had 64 ſail of the line, 8 of which were three-deckers, 26 frigates, 9 xebecs, and 28 other ſmall veſſels; total 142.

In 1778, ſhe poſſeſſed 67 ſail of the line, 32 frigates, beſides ſmaller veſſels; in all, 163; and at the end of the war, notwithſtanding her loſſes, ſhe had nearly the ſame number.

At the end of 1792, upon her declaring war, ſhe had 80 ſhips of the line, 6 of which unſerviceable, and 14 in very bad condition. At this epoch, then, ſhe had 60 remaining to oppoſe to us. She loſt four ſhips in this war. In that which ſucceeded with England, ſhe had greater loſſes to repair, and already her government is employed with great activity in this department.

The complement of men on board Spaniſh veſſels differs according to circumſtances. Properly there ought to be ten men to each gun, yet veſſels of 74 guns have ſcarcely 650. At the end of 1792 ſome had no more than 500; and the ſcarcity of good ſailors frequently obliges them to be content with 300 men for their veſſels of two decks.

But how comes it that Spain, in proportion to her population, has ſo few ſailors? Is it not becauſe the merchant ſervice is the real nurſery for the navy? And the commerce

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of Spain is rather of a paſſive than active nature; its interior navigation being reduced almoſt to nothing and its trading veſſels to nearly the ſame condition.

A few years ago its merchant veſſels amounted to between 4 and 500, of which Catalonia furniſhed three-fourths, and Biſcay almoſt all the reſt. What a difference between this number and that of England, who with a population greater by no more than four or five millions, poſſeſſed before the war which has lately terminated 7000 merchant veſſels; and with Holland, which with no more than a third part of her ſubjects, has 6,500 veſſels. However, within a few years the number of Spaniſh traders has ſenſibly increaſed; a circumſtance imputable to the eſtabliſhing a free commerce with America.

To compenſate for her deficiency of ſailors to man her veſſels of war, Spain has a marine infantry, compoſed of twelve battalions, each of ſix companies which ſhould form a corps of 12,384 men, divided among the three departments. But theſe battalions are far from being complete. When I left Spain in 1793, the four battalions of Carthagena, for example, muſtered no more than 2,300 men.

Beſides theſe there is a particular corps of artillery, divided into twenty brigades, which ſhould conſiſt of 3,320 men; but at the epoch above adverted to, it was but 1,500 men ſtrong for all the three departments.

There is alſo a ſociety of pilots, divided among the departments, with ſchools of pilotage in each.

In the reign of Ferdinand VI. the Spaniards adopted Engliſh principles in building their ſhips. Don Jorge Juan, one of the moſt able naval officers as well in theory as in practice, had ſtudied ſhip-building from its true ſource, and afterwards drew to Spain ſome Engliſh ſhip-builders. When Charles III. came from Naples to take poſſeſſion of the vacant throne, he found the building of the Spaniſh ſhips entruſted to individuals of a nation which had but too much power in the cabinet of his predeceſſor, and which at that time was at war with France. An implacable enemy to England, ever ſince the imperious leſſon ſhe gave him at Naples, and moreover religiouſly attached to the glory of his houſe, he was not tardy in joining us. In this war he became a victim to his affection for France. The Engliſh took from him the Havannah, and twelve ſhips of war which were in that port. This check given to the Spaniſh navy was a new motive with the monarch to put it upon a reſpectable footing. He renounced the Engliſh manner of building, and requeſted of the court of France a French ſhip-builder. The Duke de Choiſeul ſent him M. Gautier, who, although a young man, had already given proofs of great talents in his profeſſion. This ſtranger was looked upon while acting for the navy, as M. Maritz had been while employed on the artillery. Spirit of party, national prejudices, and more eſpecially the jealouſy of ſome individuals, created him, as they had done M. Maritz, ſuch difficulties as almoſt ſuppreſſed his zeal. The Marquis d'Oſſun, then ambaſſador from France, ſupported him in his experiments, and enabled him to triumph over his enemies. He began his labours, and diſplayed in them equal activity and intelligence. His firſt efforts, however, were not followed by complete ſucceſs. The form of the veſſels of every rate which he conſtructed enabled them to ſail with a velocity until then unknown to the Spaniards; but they were found not to have ſufficient room for the management of the guns, which made it very difficult to fight them in bad weather. He has ſince improved his method to ſuch a degree as to leave but little to deſire in that reſpect. A great part of the Spaniſh veſſels employed in the late war were built by M. Gautier; and ſeveral of them excited the admiration of both French and Engliſh ſeamen. The Conception, built according to his plan, was judged by intelligent perſons of both theſe nations, to be the fineſt veſſel in Europe. But while we do juſtice to the ſhape and ſolidity of the Spaniſh ſhips, it muſt be admitted that all

eamen exclaim with reaſon againſt their heavineſs of ſailing. This I have been told was owing to their manner of rigging and bad ſtowage, which appears probable, ſince thoſe taken in 1780 by Admiral Rodney from M. de Langara, acquired under the management of the Engliſh, a celerity of which they were deemed incapable.

Gautier is not the ſole author of the change. He has formed artiſts who ſhare that merit with him; and Spain has national ſhip-builders, who, without his aid, have improved their art, and will render his loſs leſs ſenſible to the Spaniſh navy. The diſpleaſure of the miniſter Caſtijon, formerly his friend, had for ſome years condemned M. Gautier to inactivity; and the court of France took this occaſion to reclaim from her ally a ſubject who ſeemed to have become uſeleſs. The King of Spain reſtored M. Gautier to his country, continuing the ſalary he enjoyed in the Spaniſh navy. But with the reſtriction that he ſhould again dedicate his talents to the ſervice of Spain, if hereafter need ſhould require them. The revolution robbed him of this income. Gautier for all revenge furthered it to the extent of his power, and was nigh periſhing in midſt of its ſtorms. A ſort of juſtice was done him by placing him in office, but in a ſituation leſs brilliant than that which his talents and his ſacrifices might juſtly claim *.

Since he left Spain I have been witneſs to the regret which his departure occaſioned, even in thoſe who had oppoſed or were hurt at his ſucceſs, which proves that with this nation, truly loyal and generous, juſtice ſtill gets the better of her prejudice againſt foreigners.

My own experience has proved to me that this is exaggerated, or at leaſt that it deſerves excuſe. What nation, in the ſame circumſtances as Spain, would not have ſhewn more of this odious ſentiment? Can it be ſuppoſed when Louis XIV. penſioned learned foreigners; when he ſought beyond his frontiers for renowned artiſts or ſkilful manufacturers, that he did not excite againſt them the hatred of the French, who imagined that they had a greater right to his bounty; or that their indignation did not manifeſt itſelf at the contempt ſhewn their talents by a preference to foreign induſtry? In the retinue of the French prince, coming to receive his crown, appears a crowd of foreigners, who fill all the avenues to the throne; French favourites †, French valets de chambres ‡, and French confeſſors §. The princeſs Des Urſins and the French ambaſſadors reign by turn in the cabinet. A Frenchman repairs to Spain to reform their finances ‖; and French generals are placed at the head of their armies ¶. Shortly after an Italian eccleſiaſtic **, invited by the ſe-

* He died at Paris in 1800, in a ſtate of mediocrity approaching want. Had he remained in Spain he would have finiſhed his days in eaſe; for there old ſervants are never neglected, although their ſervices be no longer needed nor even where they have reaſon to be diſſatisfied with them.

† The Marquis de Louville.

‡ Almoſt all the valets of Philip V. were French. During my firſt reſidence at Madrid I was acquainted with two (Touſſaint and Amand) who towards the cloſe of his life enjoyed great credit, and in whoſe arms he died. They were ſtill alive when I left Spain in 1785. Thus by an uncommon deſtiny they ſurvived for forty years that favor which they enjoyed to no other end than to do all the good within their power, particularly to their countrymen. Philip V., notwithſtanding the leſſons he received from his grandfather, never ceaſed looking upon himſelf to be a Frenchman. I was told an anecdote by one of his valets which he had frequently repeated to them, and which at once ſhewed his good nature and attachment to his country. The return of the infanta, deſigned for Louis XV., excited vexation at the court of Spain which bordered on rage. On the firſt news of it, Queen Iſabella, more irritated than any one, launched out into injurious languages againſt the French, and obtained from her too eaſy ſpouſe an order for all Frenchmen *without exception* to be baniſhed from Spain. The order was juſt ſigned when Philip V. calls for his valets, makes them open his wardrobes and get ready his trunks. In the interval the Queen comes in and aſks the motive of theſe preparations. *Do you not inſiſt*, ſaid Philip ingenuouſly, *that every Frenchman ſhould leave Spain. I am a Frenchman, and am packing up for my journey.* The Queen ſmiled, and the order was revoked.

§ Le Pou D'Aubenton.

‖ M. Orry.

¶ The Marſhal de Teſſé, the Duke of Berwick, and the Duke of Vendome.

** The abbé Alberoni.

cond wife of Philip V., ſhakes the very pillars of the monarchy, by the agitation which his turbulent character excites in Europe; nor does his diſgrace, the proper puniſhment of his tumultuous adminiſtration, till after a long time reſtore the Spaniards to their former ſtate. A Dutchman *, ſtill more extravagant, gains the favour of the monarch, ſeizes in one year on every dignity and every favour, and ſoon afterwards eſcapes loaded with the curſes of the people, carrying from Spain nothing but the ſtigma of a ſtate criminal. Under the ſucceeding monarch two foreign nations † reign by ſide the throne: an Iriſh miniſter ‡ raiſes himſelf by that intrigue, of which the court was the theatre, but by the eaſineſs of his yoke, his being a foreigner is overlooked, and he preſerves his influence under the new ſovereign, who quits the throne of Naples for that of Spain. One of the Italians §, who accompanies the monarch, ſoon preſides over the department of finances; and a few years afterwards another Italian miniſter ‖ ſucceeds M. Wall. The diſcipline of the infantry is reformed by an Iriſhman ¶, whilſt two Frenchmen improve **, one the artillery, the other †† the building of ſhips. At London, Stockholm, Paris, Vienna, and Venice, the Spaniſh ſovereign is repreſented by foreigners ‡‡. Strangers eſtabliſh manufactures §§, and preſide over the conſtruction of great roads and canals ‖‖, direct ſieges ¶¶, command armies ***, cauſe plans of finance to be adopted †††, and offer money to government upon the moſt advantageous terms ‡‡‡. In commercial places theſe are ſtill the perſons who ſupplant the Spaniards by their activity and ſucceſs. At Barcelona, Valencia, Cadiz, Bilboa, and other great trading cities, the richeſt merchants are foreigners. I have frequently heard the hatred they inſpire in Spain declaimed againſt. I confeſs, that if any thing has ſurprized me, it is the quietneſs with which the Spaniards tolerate them in their country, and the kind diſpoſition they have towards them, provided it be not damped by their haughty manners and inſulting behaviour: and ſhould ſome of the natives look upon them with an eye of envy, or be offended at the concourſe of fortunate ſtrangers, whoſe ſucceſs of every kind ſeems inceſſantly to upbraid the Spaniards with idleneſs and ignorance; would not this be excuſable by that attachment to national glory ſo natural and praiſe-worthy, and which ſo juſtly deſerves the title of patriotiſm?

However ſince the end of the laſt reign, Spaniards excluſively have filled all thoſe ſituations occupied before by ſtrangers. The dominion of Frenchmen, Iriſhmen, and particularly of Italians, which was uſed to be tolerated with the leaſt patience by the Spaniards, is drawing to its cloſe; and if the viceroyalty of Mexico, given to the Neapolitan Marquis Branciforte, brother in law to the Prince of the Peace, be excepted, and which in two years afterwards was taken from him to be given to a Spaniard; the poſt of grand maſter of the Queen's houſehold, occupied by a Neapolitan in diſgrace at his own court, with a lieutenancy general held by a man, an Italian by the father's ſide, a Fleming by the mother's, the Prince of Caſtel Franco who commanded the army

* Ripperda.

† The Engliſh and the Italians; the former by M. Keen, their ambaſſador; the latter by the muſician, Farinelli.

‡ M. Wall. § The Marquis of Squilace. ‖ The Marquis Grimaldi.

¶ M. O'Reilly. ** M. Maretz. †† M. Gautier.

‡‡ The Prince Maſſerano, the Count de Lacy, the Marquis of Grimaldi, before he became miniſter; the Count de Mahoni, the Marquis de Squilace after his retreat from the miniſtry.

§§ At Valencia, Barcelona, Talaverna, Madrid, &c. ‖‖ M. le Maur.

¶¶ The ſame M. le Maur at Mahon; M. d'Arcon at Gibraltar.

*** The Duke de Crillon at Mahon, and at the camp of St. Roche; the Prince of Naſſau on the floating batteries, &c. &c.

††† M. Cabarrus. ‡‡‡ The principal French commercial houſes eſtabliſhed at Madrid.

which

which Spain oppoſed to us on the ſide of Biſcay, and ſome general officers, or commanders of corps, Spaniards are in poſſeſſion of the principal favor of all the offices of adminiſtration and all diplomatic appointments *. This is an additional pretext wreſted from diſaffection which in every country has owed its origin chiefly to ſimilar circumſtances. How many the governments which have been overturned or endangered through the dominion of foreigners, which dominion if it be any where tolerated muſt indeed be mild. In France there has been a Medicis, Concini, Mazarin, and Law; in Flanders a Duke of Alba; in Switzerland a Geſler; in Portugal, when for a ſhort time incorporated with Spain, the agents of that power; Spain itſelf has had an Alberoni, a Ripperda, a Squillaci. Sovereigns are moſt inclined in fact to give full confidence to thoſe who owe their all to them, who have no other country than their court; no property but their favour. Do they rightly calculate their intereſts? Do they not rather thus invite the dangers they would ſhun? More prudent ſovereigns have leſs miſtruſt; and ſince they muſt have ſubjects, deem it beſt to attach them by affection. This is the only Machiaveliſm which ſuch permit themſelves, and which moſt willingly philoſophy allows; this is the only true means in ſhort to ſecure the permanency of their power.

With this they may manage without foreign favourites; inefficient ramparts againſt the fury of the populace, objects almoſt always odious, they are more adapted to provoke than to calm a tumult. In the inſurrection of 1775, did the Walloon Guards protect Charles III. from the ſhame of flying precipitately from the capital? Were the Swiſs guards able to ſave Louis XVI.?

But, let us reſume what remains to be ſaid reſpecting the Spaniſh navy.

The three diviſions in Europe of the navy of Spain, are not the only places where ſhips of war are built. There are dock-yards at the Havannah; and a fund of ſeven hundred thouſand piaſtres was ſome time ſince eſtabliſhed to carry on the works. At this ſtation veſſels are built at a more moderate coſt alſo than in Europe.

Spain and her colonies might furniſh her navy with all the ſhip-timber neceſſary for that ſervice. In 1785 perſons, competent to determine, were of opinion that her navy, by means of her colonies alone, might be augmented fifty ſail, and at the ſame time, receive from it materials for the maintenance of the remainder. The reſources which it poſſeſſes in Europe are as follow.

Andaluſia, which formerly produced the beſt white oak, is now exhauſted. Its foreſts yield not a ſufficiency even for the repairs neceſſary in the department of Cadiz; the wood which they require for that purpoſe being brought thence from Italy, and ſometimes cedar from the Havannah.

The department of Carthagena has no oak within its reach. The neareſt to it are the foreſts of white oak in Catalonia.

The department of Ferrol is ſupplied from the mountains of Burgos, Navarre and the Aſturias. But the foreſts of the former are greatly thinned. The two latter countries are well wooded, but the oak is of a bad quality.

This ſcarcity of wood in the metropolitan country, is principally owing to the thoughtleſs conduct of government, who about the year 1756, before roads had been made for the tranſport of them, cauſed trees to be felled ſufficient for the conſtruction of 122 ſhips of the line. No more could be brought to ſervice at the time than was enough

* The Prince of Caſtel Franco before mentioned muſt be excepted, who has lately been deputed ambaſſador to Vienna; and the Marquis de la Grua, a Neapolitan, nephew of the Marquis of Branciforte, who after reſiding at the court of Sweden is at preſent an envoy at Parma.

for 50 veſſels; part of the remainder, through neglect, rotted where they were fallen, and the remainder were ſtolen.

On the other hand, the colonies poſſeſs great reſources; Cuba ſtill contains a number of cedars in its interior, notwithſtanding many people, judging from its coaſt, eſteem it exhauſted. Near the coaſt of Cumana, as well as there, grows plenty of wood fit for ſhip building. In 1776 it was in contemplation to fell ſome of the trees. The death of the miniſter of the navy, the Bailly d'Arriaga, cauſed the project to fail. How much are thoſe governments to be pitied whoſe uſeful enterprizes depend on the life of a ſingle man.

Spain however lies ſtill at the mercy of the powers of the north for her ſupply of maſts. According to the account which the bank of St. Charles gave to the public in 1788, it appears that, from the firſt of December 1784 to the firſt of December 1785, upwards of eight millions and a half of rials were paid for maſts alone.

Spain is ſtill obliged to employ Dutch veſſels. But ſhe will be able to do without them, if the direct commerce ſhe has for ſome years carried on in the Baltic continues to proſper.

She is ſtill nearer to do without depending for her ſupply of hemp on foreign countries. For a long time the North ſupplied her with all that her navy required; latterly ſhe has received a quantity furniſhed by Navarre, Arragon, and particularly by Grenada; ſo that almoſt all the navy is fitted out with Spaniſh hemp; the department of Carthagena alone importing moſtly from Italy that of which its cables are made. Our ſeamen, as well in the American war as in the courſe of the preſent year (1802), during their confinement at Cadiz, had ſufficient means afforded them of appreciating the goodneſs of its quality.

Doubtleſs Spain has yet much to do towards perfecting her navy, but what advance towards it has ſhe not made within this century! Under Philip IV. ſhe purchaſed from the Dutch, veſſels ready built, and the cordage neceſſary for her fleets and galleons; from the French her ſail-cloths; copper from the Germans; tin and lead for the ſervice of the artillery from the Engliſh; and galleys from the Genoeſe. She ſuffered her timber to rot upon the ground, and neglected the culture of hemp. Attentive to her mines of Mexico and Peru, which promoted her deterioration, ſhe neglected her mines at home, whence ſhe might have drawn her means of defence. The evil became ſtill greater under the reign of Charles II. Spain was then like himſelf feeble and languiſhing. When her ſituation at this period is conſidered, one is ſurpriſed at the different ſtate to which ſhe has been raiſed by three ſucceeding ſovereigns. Charles V., who left it in ſuch full proſperity, would not know it for the ſame now, it is true; but his imbecile, his laſt deſcendant would ſtill leſs recollect it again.

She at leaſt poſſeſſes a navy which places her on a level with the different maritime powers. In the abſence of war in Europe, her continual quarrels with the Barbary powers afford her frequent opportunities of exerciſing her ſailors. But in theſe ſhort and paltry wars, it is different for her officers to acquire any reputation. Barcelo, who from owner of a bark attained the higheſt poſts in the navy, is almoſt the only one who has acquired any great reputation for theſe expeditions.

Of theſe regencies two in particular continually employ part of the forces of Spain as well naval as military: I mean Algiers and Morocco. Their naval power, it is true, is not very tremendous, and were it not for the ſupply of ammunition and naval ſtores afforded them by powers which poſſeſs a deſire for commerce being reſpected, they would be almoſt deſtitute of the means of equipping their veſſels. Among other importations from different ſtates they obtain from Marſeilles itſelf the timber for building their ſloops.

Some

Some years back the navy of the Emperor of Morocco was reduced to 22 or 23 ships, good and indifferent, the largeſt of which mounted no more than 22 guns. But its army is reſpectable, at leaſt as to number, ſince every ſubject of 12 years of age and upwards is a ſoldier. With this army, badly diſciplined, and not over courageous, the Emperor has ſeverally times unſucceſsfully attempted to carry the fort of Metille belonging to the Spaniards, and ſituated at the eaſtern extremity of his dominions.

The Algerines are, or at leaſt have been for a long time, an equally inveterate but much more formidable enemy. Five years ago they poſſeſſed 5 ſacties of from 24 to 34 guns, 3 xebecs of 10, 18, and 20 guns, 4 demi-gallies, and 3 galliots. With this force they were continually tormenting the Spaniards until 1784; when the court of Madrid, loſing all patience, and having concluded a peace with England, reſolved upon attempting the deſtruction of this neſt of pirates. She deſtined for this expedition a part of the naval ſtores and artillery intended for the projected attack, in union with us, upon Jamaica; which preparations were rendered uſeleſs by the peace of 1783. Algiers was bombarded by Admiral Barcelo for eight ſucceſſive days. Nearly four hundred houſes were damaged; but the buildings belonging to government remained nearly uninjured. The attacking ſquadron conſiſted of ſeventy ſail, four of which were of the line, and ſix frigates. Algiers loſt one gun-boat only; but this uſeleſs expedition coſt the Spaniards 400 men and 1500lb. of gunpowder. The Algerines had to oppoſe them no more than 2 demi-gallies of 5 guns each, a felucca of 6, two xebecs of 4 guns each, and 6 gun-boats carrying a 12 and a 24 pounder.

The expedition of the ſucceeding year under the directions of the ſame Admiral Barcelo was ſtill more fruitleſs, notwithſtanding three other powers, Portugal, Naples, and Malta, each joined with part of their forces againſt the Algerines; the whole armament conſiſted of 130 ſail. The Algerines defended themſelves with 46 gun-boats, 4 bombs, three cariaſſes armed, and three galliots. They loſt three or four of their gun-boats, had 300 men wounded, but ſatisfied the combined fleet, that a ſtill greater force was requiſite to overcome them: and that this *neſt of thieves*, if it merited the indignation of all commercial powers, did not at the ſame time deſerve their ſcorn.

In the interval between theſe two expeditions, the anger of the government had ſo far cooled as to induce it to enter into negociations for peace, which, jealous of our connections with Algiers, ſhe took eſpecial care to carry on without our knowledge. The treaty failed, and the ſecond expedition took place. The Spaniſh miniſter had reſolved upon repeating this attack annually, until the regency of Algiers, harraſſed and exhauſted, ſhould at length be obliged to crouch to Spain. He however ſuffered himſelf, at the repreſentations of the officers who had been engaged, to be diſſuaded from this project; and negociations with Algiers were renewed through the means of the Count d'Enpilly; they were followed up and concluded by M. de Mazaredo, who was ſent to Algiers when the party undeſirous of peace ſaw it about to be effected by a foreigner, and was inclined to raviſh that honour from his hands. The Spaniſh negociator ſurpaſſed the expectations of his party, and little was wanting of his falling into diſgrace for his too rapid progreſs. That theſe different negociations were all carried on, unknown to us I will not preſume to ſay, for that would have been difficult, but without any notice thereof to France. The Spaniſh government was more than ſuſpicious that the trade of Marſeilles had furniſhed the Algerines with their principal ſuccour, and that not without the privity of the court of Verſailles. However that may be, the gold of Spain made more impreſſion on the barbarians, than what their bombs had done. Florida Blanca, who ſome months before had boaſtingly ſtated, and cauſed to be printed in the Madrid gazette, that "Spain would teach the other powers of Europe, by the ex-

ample ſhe would give, to ſtoop no longer to be their tributaries;" this miniſter, following the common routine, thought that he rendered his country a ſervice in purchaſing a peace of the regency of Algiers, at the price of 14 millions of rials.—Ah, M. de Florida Blanca, you preſided over the Spaniſh monarchy for fifteen years. Your adminiſtration was not deſtitute either of ſplendor or good fortune; you had an attachment to your country, which was cloſely allied to an hatred againſt all others; you rendered it ſervice, if not with a profundity of underſtanding, yet with loyalty and diſintereſtedneſs; the grandeur of your ſentiments cauſed the moroſeneſs and iraſcibility of your temper to be overlooked; you acquired a title to the eſteem of every one by the magnanimity with which you ſupported diſgrace, to which I myſelf have been witneſs, and which the cauſe I ſerved obliged me to approve; but you muſt allow, that your conduct with reſpect to Algiers was not among the wiſe or brilliant atchievements of your adminiſtration.

Since the peace concluded in 1785, Spain has had other diſputes with Algiers; and, perceiving that the poſſeſſion of Oran and Mazalquivir, ſituated on her ſhores, would ever be an inexhauſtible ſource of quarrel, that as well they were no uſeful property, and that their poſition favoured deſertion among her troops; Oran as well having experienced two ſcourges at once, a ſiege by the Bey of Maſcara, and an earthquake, which had reduced it to a heap of ruins; Spain, at length, towards the end of 1791, determined on renouncing them both in favour of the Dey of Algiers, reſerving to herſelf ſome commercial advantages.

Thus did theſe famous conqueſts of Cardinal Ximenes fall again under the dominion of barbarians. On the 26th of February 1792, ſix thouſand five hundred men, which formed almoſt all the Spaniſh population, evacuated Oran, marched round the bay, and proceeded to Malzaquivir, whence they embarked for Carthagena. Every thing was carried away in the ſight of the Moors, who ſhortly after entered the place. Oran could never be defended but at a great expence, and was not of the ſlighteſt utility; at leaſt four thouſand men were required to man its walls, and they were ſcarce ſufficient; there were four trenches in an amphitheatre, for the purpoſe of guarding a ſpring of water, without which the garriſon could not ſubſiſt, and which the Moors had frequently attempted to cut off from it. Under theſe circumſtances, Spain ſhewed her wiſdom in abandoning both the places: ſhe would have done well if, at the ſame time, ſhe had given up her other ſtations on the coaſt of Africa which nothing but vain glory can induce her to retain, and which are only burthenſome to her. She maintains there, particularly at Ceuta, ſeveral thouſands of galley ſlaves, called *preſidarios*. Of thoſe who drag their chains after them naked, and covered with rags, there are from four to five thouſand; the reſt who are not near ſo numerous, enjoy a degree of liberty, and go in ſearch of labour. Both receive alike a very trifling allowance for their ſupport; and among this refuſe of the human race are confounded together, to the diſgrace of reaſon and equity, aſſaſſins, criminals of every deſcription, ſmugglers, deſerters, and other unfortunate beings, who expiate in this contagious ſociety crimes of a much leſs heinous nature.

The navy it is which brought on this digreſſion reſpecting the Barbary powers, and the preſidencies of Africa. It as well naturally leads to commerce; which cannot be maintained without it, and which feeds its protectreſs. It ſhall be the ſubject of the following chapter.

CHAP.

CHAP. VI.—*On the commerce of Spain in general.—Regulations reſpecting corn.—Interior trade.—Coaſting trade.—Commerce in Europe.*

THE commerce of Spain has more branches poſſibly than that of any other country on the globe. It has immenſe regions to ſupply; poſſeſſes a great number, and a large quantity of territorial productions fit for diſtant exportation, ſome of which are much ſought after, and ſome cannot be diſpenſed with. It acted a principal part at the time the Spaniſh monarchy ſhone in its ſplendor, and foreign merchants entered deeply into the interior to exchange their merchandize for the produce and manufactures of the country. Under the ſucceſſes of Charles V. theſe golden days had flown, and Spain for a long time carried on no other than a paſſive and diſadvantageous trade. At preſent, notwithſtanding her agriculture and manufactures are far from being at their zenith, it may be ſafely affirmed, that if ſhe had only herſelf to ſupply with ſuch merchandize as ſhe ſtands in need of, the value of her imports would certainly be at leaſt equalled by that of her exports: ſo that the diſadvantageous balance of trade againſt her, in her commerce with Europe, is wholly occaſioned by her American poſſeſſions, and the neceſſity ſhe lays under of obtaining from other ſtates thoſe articles which her own manufactories do not ſupply in greater abundance than what her home conſumption requires; and ſuch articles, natural or fabricated, as are not produced within herſelf, to anſwer the immenſe demand of her colonies. It is true this is compenſated by the produce of her mines, which furniſh her with means to anſwer the balance; whence it muſt be evident, that theſe colonies are not altogether ſo burthenſome to Spain as ſome are apt to imagine; and the leſs ſo, from their preſenting an incentive to agriculture and induſtry, in the certainty which they afford of a conſumption, and a ready market for the increaſe of quantity, conſequent upon enlarged exertions.

Many readers will poſſibly look upon this aſſertion as paradoxical. Fifty years ago it would have been erroneous. It is more than probable now that Spain appears to be awakened from her lethargy; and ſtands as a fact with thoſe who have made the extent of her actual reſources their ſtudy.

In the firſt place, ſhe poſſeſſes all the neceſſaries of life in abundance. We have ſpoken of her wools, and her cloths, which, although at preſent not brought to perfection, are yet ſufficient for clothing her population; and, when we treat of Valencia, we ſhall ſee what reſources ſhe derives from her ſilk. Her brandies, rich wines, fruits, barilla, ſoda, and oils, form a conſiderable branch of exportation from her eaſtern and ſouthern coaſts. She makes all the common wines neceſſary for the conſumption of the kingdom; and agriculture, if more encouraged, would furniſh corn ſufficient for home conſumption, leaving a ſurplus for exportation. Notwithſtanding the preſent backward ſtate of the country, ſome of the provinces, Andaluſia and Old Caſtile for example, produce more corn than they can conſume; but the difficulty of inland carriage renders this fertility almoſt uſeleſs to the reſt of the kingdom. With few roads, not one navigable river, not one canal in full activity, carriage is neceſſarily very expenſive, and very ſlow. It is well remembered at Madrid, even now, that about twenty-five years ago the capital, from ſome neglect, being in want of bread, and a ſudden ſupply becoming abſolutely requiſite, the miniſtry were obliged to employ 30,000 beaſts of burthen, in order to ſecure a receipt of 2500 fanegas* per day. Spain is therefore at times dependant upon foreigners for a ſupply of proviſions, even when ſome of its diſ-

* Five fanegas make a quarter of wheat.

tricts enjoy a ſuperfluity. But, notwithſtanding the cry of ſcarcity, ſhe never needs more than a thirtieth part above her produce. Of this I ſubjoin a proof.

Her whole conſumption may be computed at 60,000,000 fanegas; at leaſt the following calculation will make this computation plauſible.

Sixty million fanegas, if the fanega be eſteemed to weigh 90lbs., will give 5,400,000,000 pounds of wheat, which, divided by the population 10,500,000, will give for each individual 520lbs. nearly, or leſs than a pound and a half per day. This ſtatement may be conſidered as not affording a ſufficiency, by nations which, like the French, reckon that each individual will conſume two pounds of bread per day, but a different opinion will be formed, if it be conſidered that, firſt, the fanega moſt frequently weighs more than 90lbs.; ſecondly, that the population is ſcarcely ten and a half millions; thirdly, that maize is uſed both mixed with wheat and by itſelf in many parts of Spain; and, fourthly, that Spaniards are not near ſo voracious as the French of the article of bread; ſo that the conſumption of the country will be rather overrated than otherwiſe at 60,000,000 of fanegas.

On the other hand, the forty ſhip loads at moſt which ſhe imports can yield no more than 2,000,000 of fanegas; yet this quantity is ſufficient for her momentary neceſſities, which a falſe panic has exaggerated. Hence Spain, were ſhe left entirely to herſelf, could not experience a famine. What nation could not upon emergency, without any great effort, diminiſh her common conſumption a thirtieth part? After what occurred in France in 1794 and 1795 this cannot be doubted.

Nevertheleſs, upon the moſt ſlight appearance of dearth in Spain as well as in other countries, no other remedy is thought of than a prohibition of exportation; a meaſure at leaſt uſeleſs, and frequently diſaſtrous, on account of its depriving fertile provinces of a certain market, which ought rather to meet with encouragement to induce them to combat ſucceſsfully the obſtacles reſulting from peculiar poſition.

There is yet no permanent law reſpecting the commerce of grain. Up to the reign of Charles III. its exportation was almoſt uninterruptedly prohibited, and its price was eſtabliſhed at a fixed rate. The inconvenience of this reſtriction was at length diſcovered, and M. de Campomanes, who was then fiſcal of the Council of Caſtile, cauſed it to be abrogated. In 1765 it was eſtabliſhed by a royal mandate, that the interior commerce of grain ſhould be abſolutely free; that it ſhould be permitted to ſtore it in public magazines, whence, to ſupply preſſing neceſſities, it might be taken at the current price; that leave ſhould be granted to take grain from the magazines, when, after three ſucceſſive markets, it ſhould have continued at a certain price; that corn from abroad might be introduced and ſtored in magazines within the country as far as ſix leagues from the ſea, &c. This regulation ſhortly after experienced ſome modifications. The exportation of grain was even entirely prohibited in 1769; but the regulation of 1765 was wholly re-eſtabliſhed in 1783.

Theſe variations muſt naturally tend to increaſe the timidity and indolence of cultivators. To encourage them to derive all poſſible advantages from their lands, a more permanent law is neceſſary, one better obſerved. For that which permits exportation is inceſſantly eluded by the caprice or avarice of the alcaldes and governors of the frontiers; and when nothing prevents its application there are ſtill many formalities to go through before the exportation can take place. Exportation is therefore rare, and carried on but to a trifling degree in the manner authorized by the law. The ſlowneſs and expence of carriage in Spain, is an inſurmountable obſtacle to the ſmuggling of that quantity of corn from the kingdom which is ſuppoſed to leave it illegally. On the other hand, it is well aſcertained, that grain finds its way into Spain by different channels; Gal-

licia

licia and Aſturia frequently receive corn from abroad, although the people there conſume a great deal of maize; Biſcay takes ſome from the province of Alava, from Navarre and Arragon, and ſometimes from foreign nations, by the way of St. Sebaſtian; all the eaſtern coaſt of Spain is in continual want of ſupply; the kingdom of Valencia receives it from abroad, when La Mancha, in which corn almoſt conſtantly abounds, cannot furniſh it with a ſufficient quantity; and, laſtly, Andaluſia, notwithſtanding its fertility, receives grain from other countries by means of its ports of Cadiz and Malaga *. The exportation of grain cannot take place with advantage, except by the frontiers of Portugal. This kingdom ſeldom reaps enough for its own conſumption, and the neighbouring Spaniſh provinces have frequently a ſuperabundance.

There is no conſiderable exceſs of corn in any province of Spain, except in Old Caſtile, and this is ſent to St. Andero and ſome neighbouring ports in Gallicia, Aſturia, Andaluſia, and even to France, as happened in 1782 and 1783. However exportation is greatly in oppoſition from the rooted prejudices of Old Caſtile, which however ought not to weigh againſt experience; ſince the regulation of 1765 was juſtified by an increaſe of almoſt a third in the produce.

About the ſame time, a meaſure was adopted for the encouragement of agriculture, by inſtituting the *Poſitos*. Theſe are magazines of corn, eſtabliſhed in upwards of five thouſand cities, towns, and villages in the kingdom, to inſure ſubſiſtence to the people againſt all accidents, and to prevent the alarms which in theſe delicate matters are often equivalent to real evils. When it is intended to eſtabliſh one of theſe *poſitos* in any place, the municipal corps (*ayuntamiento*) obliges every inhabitant who has a field, either in fee or at a quit-rent, to contribute thereto a certain number of *fanegas*. The year following the inhabitant takes back what he has furniſhed, and ſubſtitutes for it ſomewhat more; and thus in the following years, until the whole of the different increaſed quantities depoſited, which are called *creces*, has ſufficiently filled the magazine. But this period is retarded at the will of avarice, and there are few *poſitos* in Spain, the management of which does not enrich the adminiſtrators at the expence of the poorer claſſes of the people. However, for ſome years back great pains have been taken to remedy theſe abuſes, and eſtabliſh the *poſitos* according to their original deſtination, that they may tend to the encouragement of cultivators, and, if poſſible, a part of the increaſe be applied to the aſſiſtance of thoſe who may be in want of grain for ſowing their lands †. Beſides theſe public magazines there are the magazines of corn eſtabliſhed in ſeveral places, by charitable individuals, for furniſhing poor huſbandmen with the means of ſowing their lands. There are likewiſe at Valencia and Malaga other beneficent eſtabliſhments whoſe object is the encouragement of agriculture. Theſe are named *erarios*, and conſiſt of funds deſtined to make advances in money to labourers, for a year only. Theſe funds were taken from the produce of the *ſpolios y vacantes* ‡.

But all theſe aids, all theſe palliatives, which rather demonſtrate good will than intelligence, are inſufficient for the vivification of agriculture. Its languor is the reſult of a ra-

* Valencia imports the grain requiſite for its conſumption moſtly from Italy and Barbary. What it receives from La Mancha is at a higher price, on account of there being no other mode of tranſporting it but by mules; in peace it is not ſo dear as in war, on account of the muleteers reſorting more to Valencia for ſalt cod, which is an almoſt indiſpenſible aliment in their country; in war time they have no back carriage; add to this, it frequently happens that the harveſts in La Mancha fail from droughts, on this account Valencia has no ſafe dependance on this country for its reply.

† This reſource of poor farmers was dried up during the laſt war; the King having ſeized upon the *poſitos* to proviſion the army, promiſing reſtoration at a more propitious period of this ſpoliation, to which he was driven by circumſtances.

‡ But they are particularly of late very badly managed.

dical evil, which will not be exterminated even when all the modes of facilitating communication ſhall become eſtabliſhed. In Spain, individual properties are too conſiderable, the country too little peopled, and a number of circumſtances tend to diſcourage the cultivators. The mention of one will be ſufficient. The privileges of the *meſta*, which extend to the proprietor whoſe ſheep are fed on his own grounds, obliges him to leave his fields open in all ſeaſons; ſo that from the inſtant the grain is ſowed to the period of his ſowing again, his lands belong leſs to himſelf than to the public *.

Were agriculture more encouraged, what a ſource of wealth would it not be for Spain! Nothing can ſurpaſs the natural fertility of many of its provinces. Its grain is of the fineſt quality. Wheat is reaped among them which, paſſing through the mill, loſes no more than 5 per cent. by converſion into flour, while northern wheats loſe 15 per cent. Hence ariſes a notable difference in the eſtimation and price of the two deſcriptions of wheat. The wheats of Andaluſia have been known to fetch double the price at Seville which foreign wheats have been ſold for at Cadiz.

Waiting until government ſhall give life to the interior of Spain by eſtabliſhing roads and canals, its commerce chiefly conſiſts in wine and oil, which are carried in leathern bottles by mules or aſſes from one province to another; in grain, of which, in like manner by the aid of beaſts of burden, the ſuperfluity of one diſtrict is transferred to another; and particularly in wool ſent from the ſheep-folds and waſhing-places of the two Caſtiles to the ports of the northern coaſt. Materials for the manufactories and merchandize which paſs from the ports or frontiers into the interior parts of the kingdom, are tranſported thither by the ſame expenſive conveyance.

Spain is not much farther advanced in the coaſting trade. Excepting the veſſels of Catalonia and thoſe of Biſcay, the carrying trade along the coaſt is almoſt wholly in the hands of the French, Dutch, and Engliſh; three nations which have the advantage of being more active, and who underſtand how to navigate their veſſels at a leſs expence and with fewer hands than the Spaniards. What has hitherto obliged Spain to employ a greater number of ſailors, is the ſtate of perpetual war ſhe is in againſt the Moors of Barbary, which has beſides the inconvenience of diminiſhing the confidence in her flag. Its government has however recently felt the neceſſity of obviating this principal obſtacle to the proſperity of her navigation in the Mediterranean Sea.

But it is more particularly in foreign commerce that Spain acts but a paſſive part. I ſhall ſoon convince my readers of this by taking a view of the coaſts.

In the firſt place, thoſe of Catalonia are an exception. But few of the reproaches alledged againſt the Spaniards are applicable to the Catalans. The port of Barcelona exports its ſilks, middling cloths, and cotonades, its indianas, wines, brandies, and other productions; and if we wiſh to form an opinion of the part the Catalans take in this trade, we muſt attend to the circumſtance, that in 1682, of ſix hundred and twenty-eight veſſels which entered Barcelona, three hundred and ſeventeen belonged to Spain. It is true, ſilks from Lyons, ſtockings from Nîmes, ſeveral kinds of ſtuffs and cottons, in ſpite of the prohibition, and particularly dried cod, an article for which Spain is yet tributary to the Engliſh in the ſum of 3,000,000 of piaſtres annually, paſs into Catalonia by the ſame port.

* The impediments to agriculture are expoſed in a very luminous manner by *Don Gaſpard Melepier de Jovellanos*, in a piece which forms part of the volume of Memoirs publiſhed by the Patriotic Society of Madrid in 1796. The remedies are indicated therein, as well as the evils themſelves; but the good wiſhes of a citizen, equally eſtimable for his zeal as his talents, trench upon the intereſts of ſo many as to afford no proſpect of any ſpeedy completion.

Remarkable

Remarkable ſingularity in the hiſtory of commerce! that a Proteſtant nation ſhould furniſh a Catholic kingdom with an article, which that nation only can prepare according to the taſte of the conſumers, by fetching from their own coaſts * the ſalt neceſſary to cure the fiſh taken upon the banks of Newfoundland, an iſland diſcovered by the Spaniards; and as if this ſpecies of ſervitude were irrevocably decreed by fate, all the attempts hitherto made to ſubſtitute fiſh taken on the coaſts of Biſcay and Aſturia reſembling Engliſh cod have been ineffectual; and have proved that laws, policy, and even intereſt diſappear before the caprices of taſte †.

The other ports of Catalonia are much in the ſame ſituation as that of Barcelona. Tarragona, and the neighbouring ports receive in addition ſome articles of neceſſity, and export dry fruits. Tortoſa exports or imports wheat, according as the harveſts of Arragon and Catalonia are good or bad; but the principal article of exportation from this port is pot aſh.

A conſiderable commerce is alſo carried on in the ports upon the coaſt of Valencia, and chiefly with France. The French ſend to Valencia linens, woollens, hardware, ſpiceries, and grain, to almoſt as great an amount as the wines, wool, dried fruits, pot-aſh, and barilla, which they take from thence. They fetch from Gandia the wool uſed by the manufacturers of Languedoc and Elbeuf, and carry with them French cloths, ſilks, linens, hardware, &c. The Engliſh alſo carry thither their cloths, and the Dutch ſhip from thence the brandies of the country. Alicant has been, up to the preſent time, the moſt commercial city in Spain, and its port that moſt frequented by national bottoms. Of nine hundred and ſixty-one ſhips which entered it in 1782, ſix hundred were Spaniſh, and moſt of them Catalans ‡. The abundant production of its neighbourhood of wines, brandy, almonds, aniſeed, cordage, ſalt, ſaffron, &c., with about five thouſand tons of barilla, of which four-fifths is exported by the French, and the remainder by the Engliſh; theſe productions are exported to foreign countries from Alicant in greater abundance than from any other Spaniſh port. Its port, a large and ſafe roadſted but not deep, is a depôt for all merchandize coming from Mediterranean ports deſigned for Spain.

Alicant ſuffered conſiderably in the laſt war with England; its port was little frequented unleſs by neutrals, who came to take in ladings of the productions of the country. In enumerating the objects of exportation from this city, a ſpecies of cochineal, known under the name of *grana*, muſt not be omitted, which is uſed with nearly the ſame advantage as that of America, although inferior. It is a maſs of ſmall colouring inſects ſufficiently reſembling thoſe of the real cochineal. They are collected upon the oak tree (roble), which abounds in the neighbourhood of Buſſots near to Alicant.

The ſalt which bears the name of this town is not properly ſpeaking a production of its *territory*. It is collected from two ponds in the neighbourhood of each other, but which have no communication with the ſea; they are called *La Mata* and *Torre Vecchia*,

* The ſalt with which the Engliſh ſalt their cod is brought from St. Ubes and Alicant: whither their ſhips ſometimes come in ballaſt to load with ſalt, thence to proceed to Newfoundland.

† The conſumption of Engliſh cod was greatly diminiſhed during the laſt war, although neutral veſſels brought quantities to Spain under the title of French cod; the Baccalar of Norway has been ſubſtituted for Engliſh cod in different parts of the kingdom, particularly at Barcelona, where it is preferred, but in almoſt every other part of Spain, although not ſo good as the bacalar, there is a marked predilection in favour of Engliſh cod.

‡ In the years immediately following this port was not frequented by near ſo many national ſhips. The two laſt wars have every where ſuſpended the activity of the Spaniſh navy. But in one year as many as eight hundred Swedes had arrived there. The cuſtom-houſe of Alicant is conſequently the moſt productive one the monarchy can boaſt.

and are to be ſeen half way between Alicant and Carthagena. The ſimple evaporation excited by a burning ſun covers their ſurface with a foam, which is gathered in the month of Auguſt during dry weather; early rains, however, ſometimes ruin the harveſt. The ponds of La Mata and Torre Vecchia are two ſources of ſalt almoſt inexhauſtible, and ſufficient of themſelves to furniſh the whole of Europe with that commodity. Their annual produce, which is from twenty to forty million pounds, is carried to Alicant, where the nations of the North come to fetch it, particularly the Engliſh, to whom it is abſolutely neceſſary for ſalting their fiſh, and the Swedes, who annually import 30,000 caſks of 3 cwt. each.

The wines of Alicant are of different deſcriptions. The principal and the only one much known out of Spain is a rich red wine, called *Tent.* Beſides this they have one, but of which very little is made, that is white and of muſcadine flavour; and another called d'Aloque, a common wine, ſome of which is exported to the neighbouring provinces, to Cadiz and to Gibraltar. Their red ſweet wines, which, when young, are of a very deep red colour, are ſometimes imported into France for Bourdeaux, where they are employed in giving body and colour to claret.*

Almoſt all the wines called Alicant are made in the neighbourhood of that town. The vineyards begin at about half a league from it, in a canton known by the name of *Huerta de Alicant*, which owes its ſurpriſing fertility to a neighbouring pond, whoſe water ſerves for its irrigation. This pond, which belongs to the King, is ſurrounded with a wall ſixty feet high, and wide enough for three carriages to drive abreaſt upon it, is a remnant of the labours of the Moors, who, in every part of Spain, left traces of their induſtry.

To Carthagena the Engliſh, Dutch, and Neapolitans carrry merchandize of all kinds, and return loaded with ſilk, wool, cordage, pot-aſh, and barilla.

Almeria is a ſmall port, the principal commerce of which is in the hands of the French, whoſe ſhips carry thither the productions of their manufactures, and return loaded with lead, pot-aſh, &c.

Wine and fruits are exported from Velez Malaga, and Marbella, moſtly in foreign bottoms.

Malaga has a very conſiderable commerce, the advantage of which is entirely in favour of Spain, but with little profit to its navigation. The Engliſh, who are in poſſeſſion of the greateſt part of the trade, carry thither woollens and great quantities of hardware; the Germans linen, the Dutch ſpice, cutlery, laces, &c. Theſe nations, thoſe of the North, and Italy, export to the amount of two millions and a half of piaſtres in wines, fruits, ſumach, pickled anchovies, oil, &c., and all they carry thither amounts only to about a million and a half. The Spaniards themſelves take ſo little intereſt in the ſhipping, which a ſimilar extent of commerce muſt require, that in 1792, of the crowd of veſſels which entered and ſailed from Malaga, ſcarcely ſixty were national.

Cadiz, the commerce of which I ſhall ſpeak of at ſome length in another place, is a ſtriking proof of the inactivity of Spaniſh navigation. Scarcely a tenth of the veſſels which enter there belong to Spain. Latterly, however, the Spaniards have increaſed in activity at this port more than any other of Spain.

The neighbouring little ports of St. Lucar and St. Mary are in miniature what Cadiz is at length.

If we paſs from the coaſts of Andaluſia to the northern coaſt of Spain, we ſhall find the French, Engliſh, and Dutch in poſſeſſion of the trade from Vigo, Ferrol, and particularly from Corunna, which moſtly conſiſts in importation; for the pilchards, cattle, and common linens, the only articles Gallicia has to ſpare, ſerve to pay the balance due

to

to the neighbouring provinces. Corunna owes to the reign of Charles III. a trifling exportation trade, which it has to America by the packet-boats that ſail every month for the Havannah, and every two months for Buenos-Ayres. Theſe were eighteen in number, when the war of 1779 began. Several fell into the hands of the enemy, but were afterwards replaced. The conveyance of packets and paſſengers is the principal object of their inſtitution; but it occaſionally furniſhes the means of exportation to the productions of Gallicia. They employ about a thouſand ſailors, and enliven the circumjacent countries. At this inſtant there is at Corunna for their periodical communication five merchant frigates inſtead of eight, which there were in 1796; one of three hundred and ninety tons, and four of a hundred and twenty; three brigantines and a corvette. It is as well aſſiſted by four veſſels of from eighty to a hundred tons, and two golettas from Porto Rico.

During the war which Spain waged againſt France in conjunction with the Engliſh, ſhe eſtabliſhed a proviſional courier once a week for Falmouth, by which means ſhe obtained a rapid communication with all the north.

Upon the coaſt of Aſturias there are eighteen ports ſcarcely known to have a name, the trade of which is almoſt excluſively in the hands of the Dutch. A little before the American war the Engliſh and French, who had been driven from them for ſome years, appeared there again with linens, woollens, and ſmall ware. Some veſſels from the country however ſail to France and England in ſearch of what is neceſſary to ſupply the wants of the province; and ſince the eſtabliſhment of a free commerce with America, the trade of Gijon, the moſt important of theſe ports, begins to acquire ſome activity.

The country adjacent to the Aſturias is called the *Montanas de Burgos;* and is one of the diſtricts of Spain the moſt unprovided with reſources. Government, conſidering this, permitted that diſtrict to receive the neceſſaries of life duty-free. The treaſury was not long before it repented of the conceſſion, under favour of which all ſorts of foreign merchandize being introduced by the ports of this coaſt, adminiſtration has recently taken meaſures to prevent future abuſes. Hence acts of rigour, and even of malevolence have been put in practice againſt foreigners, particularly the French, of all the people of Europe, that which before the rupture between the two powers ſeemed to enjoy in reſpect of this trade the moſt excluſive privileges.

Saint Andero is the principal of theſe ports; it receives by about a hundred French veſſels from their weſtern ports, every thing which they can furniſh for its conſumption. Theſe ſhips return loaded with wool for the manufactures of France, and corn for the other Spaniſh provinces, and ſometimes for thoſe of their own kingdom. The Engliſh export from Saint Andero the ſame articles, in exchange for cod, oil, fiſh, &c. and employ, in this commerce, about forty veſſels. Some Dutch and Hamburgh veſſels trade thither alſo. The eſtabliſhment of a free commerce has begun there to animate the national navigation. The neighbouring ports, ſuch as thoſe of *Suances*, *Comillas*, and *St. Vincent de la Barquera* carry on a little coaſting trade with the barks of the country. *Santona*, which has an excellent port, ſends ſome veſſels loaded with cheſtnuts to Holland, and a few cargoes of lemons to France.

Their coaſt, the trade of which, as we have ſeen, is almoſt wholly in the hands of foreigners, joins that of Biſcay, which carries on the moſt active commerce in Spain after that of Catalonia.

The principal ports of Biſcay, Bilboa, the Paſſage, and St. Sebaſtian, are much frequented by the Engliſh, French, and Dutch, who carry thither their manufactures, and return with iron, wool, and anchors. The Biſcayners, in their own ſhips, maintain a regular trade with different ports of Spain, as well as with France, England, and Holland.

A few

A few words upon the trade of the Mediterranean iſlands, which make a part of the crown of Arragon, will complete this ſlight ſketch of the commerce of Spain.

The iſland of Majorca, the principal one of the three, although its population be no more than twenty-four thouſand four hundred ſouls, produces wine, and fruit, oranges, almonds, and oil, which are ſent to Spain, ſome brandies, taken by veſſels from the north, a little ſilk which goes to Catalonia, and coarſe wools ſent to Sardinia and Italy, with inlaid work, for which the Majorcans are famous. It receives corn from the French and Italian ports, cattle from thoſe of Languedoc and Catalonia, and rice and ſilks from the coaſts of the kingdom of Valencia. The Engliſh, the Dutch, and particularly the French and Genoeſe, carry to it all the other articles of which it has need. The people of Majorca, like the inhabitants of moſt iſlands, have an inclination and aptitude for navigation. Their dock-yard is at Palma, which is their principal port; they fetch cocoa, ſugar, iron, and planks from Marſeilles; and their xebecks go to Cadiz, where they take in cargoes. Their ſpirit of adventure would greatly increaſe were it not for their apprehenſion from the Barbary corſairs. It has received a new ſtimulus, by the eſtabliſhment of a free trade to America.

Minorca, unfruitful and almoſt without induſtry, was furniſhed with every thing by foreign veſſels, and particularly by thoſe of France before it was conquered by Spain. I know not whether the change will be advantageous to the inhabitants with reſpect to their commerce or not, perhaps they would have been better pleaſed if the treat of Amiens had left them ſubject to their former ſovereign.

Iviza, the third of the iſlands anciently called the Baleäric, exports but little, and receives its ſupplies of neceſſaries from Majorca and the coaſts of Spain. Its principal riches conſiſt in ſalt, of which foreign ſhips, particularly Swediſh, come thither to take in their cargoes.

Theſe accounts are more than ſufficient to prove that the commerce the Spaniards have with foreigners is but paſſive. The extenſion of the free commerce with Spaniſh America however has already had an effect, and will, no doubt, operate advantageouſly for their ſhipping intereſt. This will be ſufficiently explained in the following chapter.

CHAP. VII.—*Of the trade between Spain and her colonies. — The eſtabliſhment of a free commerce. — Adminiſtration of Galvez.*

AFTER the conqueſt of Spaniſh America, the court of Madrid confided the adminiſtration of that country to a permanent council, under the name of the *Council of the Indies*, which ſtill ſubſiſts, with nearly the ſame laws and principles, that, according to circumſtances, were at firſt adopted. The organization which it eſtabliſhed for its vaſt poſſeſſions forms no part of my ſubject: I ſhall ſay no more of it than what will be neceſſary to give a proper knowledge of modern Spain, with reſpect to her connexions with her colonies.

The *Council of the Indies* is, like the Council of Caſtile, compoſed of ſeveral chambers, two of which are eſpecially charged with affairs of adminiſtration, and the third with the deciſion of lawſuits. It has alſo its *camera*, which propoſes to the King, by means of his miniſter, ſuch perſons as it judges proper to fill places in Spaniſh America. It is by this council alſo that the laws and regulations by which that country is governed are framed. This having been the permanent depoſitory of the fundamental laws upon which its conſtitution was at firſt erected, it has been a conſtant enemy to all change.

One of theſe laws confined the commerce of Spain with her colonies, to a ſingle port: at firſt that of Seville; but when the Guadalquivir, which in the time of Charles V. was

navigable up to this port, became inacceſſible to large veſſels, the centre of the Spaniſh American commerce was removed to Cadiz. The manner in which it was carried on is generally known. It will not be neceſſary to repeat here what is known to every one, that at ſtated times a fleet ſailed to Mexico to furniſh a ſupply of ſuch articles as it required, and bring back its productions to Cadiz, while, at the ſame time, galleons ſailed for Porto Bello. It will be ſufficient to remark, that this method continued to be practiſed until the war which begun in 1732, when regiſter ſhips were ſubſtituted for galleons, which no longer ſailed at any fixed time. But the fleet for Mexico, and the regiſter ſhips, continued to ſail from Cadiz.

In the mean time, the coaſt of Caracas received its ſupply of merchandize from other quarters. The care of furniſhing it was deputed by Philip V. to the company of Guipuſcoa, which we have noticed before, and which enjoyed the advantage of an excluſive privilege, without having received it in form.

Bad adminiſtration, which, while it enriched the agents, excited complaints from the ſettlers at Caracas. occaſioned it to decline. The injury it received at the beginning of the American war, and which amounts in loſs to 1,500,000 piaſtres, gave it the finiſhing ſtroke; the company then felt the burthen too heavy to be ſupported, and prayed the King to be diſpenſed from their obligation of maintaining, with little avail, certain guarda coſtas, which were an annual expence to them of 200,000 piaſtres. This prayer was granted, and the company has preſerved the ſame means for carrying on trade with the Caracas that its competitors enjoy at preſent, but with ſuperior facilities.

The experiment made by Philip V. in favour of the ſettlers of the Caracas was a ſtep towards new attempts of the ſame kind. In 1755 Ferdinand VI. permitted a company of merchants at Barcelona to ſend out ſhips to St. Domingo, Porto Rico, and Margaretta; but the privilege was clogged with ſo many reſtrictions that the company made no uſe of it.

In 1763, the dawn of a new day began to illumine Spaniſh America. Already had certain intelligent perſons repeatedly repreſented to government the inconvenience of confining to a ſingle port, and to periodical voyages, the whole commerce of theſe extenſive colonies. But two unfavourable experiments, made at different periods, had made it timid. Under Charles V. there had been an attempt to eſtabliſh a free trade, but ſoon afterwards it was found neceſſary to reſtore the former reſtrictions. From 1748 to 1754, regiſter ſhips had ſailed from different ports of Spain beſides Cadiz; and the numerous failures which followed in conſequence ſoon cauſed the meaſure to be abandoned. Theſe objections were anſwered by obſerving, that precautions and regulations better adapted to the time and the nature of the different expeditions, muſt prevent the ruinous ſpeculations of new adventurers; that Spaniſh America, better known by its wants than its reſources, no longer preſented the ſame riſks to merchants; and that the old plan on one hand expoſed the coloniſts to all the hardſhips of monopoly, and on the other, left too great an opening to the ſpeculation of ſmugglers.

A tarif drawn up in 1720, ſeemed to have been calculated for the advantage of thoſe who purſued this illicit trade. It loaded with export duties the productions of the mother country. It eſtabliſhed the ridiculous duty of *Palmeo*, which was received upon the bales, not according to the quality of the merchandize, but in proportion to their dimenſions; a duty which rendered it impoſſible to take any account of the quantity or quality of foreign ſtuffs ſhipped for the colonies. In a word, it preſcribed a number of formalities perplexing to legal commerce; and ſmuggling added to the advantage of eluding them, that of defrauding government of duties on exportation and importation to the amount of 70 per cent. The Engliſh profited by this ſo much, that, according

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to calculations which I have reaſon to believe exact, their contraband trade produced them after the peace of 1763 twenty millions of piaſtres per annum.

At length the court of Spain opened its eyes; but frequently circumſpect even to exceſs, and prudent even to tardineſs, it as yet was ſatisfied with trying a new regime for a part of its colonies. By a decree of the 16th of October 1783, ſeveral European ports were permitted to trade immediately with the Spaniſh *Caribbees*, and the provinces of *Campeachy*, *St. Martha*, and *Rio de la Hacha*. The decree diminiſhed the duties of the tarif of 1720, and diſpenſed with many formalities.

The Spaniards were not at firſt eager to begin this new traffic; the iſland of Cuba became the principal object of their timid adventures. Yet in 1770 this iſland, which, well cultivated, might ſupply all Europe with ſugar, did not furniſh enough for the conſumption of Spain. Merchants have ſince become more enterprizing. Government has given new encouragement to the trade with the Havannah, eſpecially in facilitating the importation of negroes, by a conſiderable diminution of the duty on their importation. The company which had the excluſive privilege of furniſhing them, had almoſt ruined itſelf in the undertaking; but theſe new meaſures ſoon gave it the means of repairing its loſſes. The iſland of Cuba began from that moment to proſper viſibly. Before the year 1765, ſcarcely ſix ſhips in a year arrived at its ports; in 1778, its commerce gave employment to upwards of two hundred, and its crops of ſugar were more than ſufficient to ſupply the demands of Spain.

At that time Galvez had enjoyed the poſt of miniſter for the Indies ſcarcely two years; he was of a ſtern and deſpotic character, but neither deficient of courage nor intelligence. * He had travelled through a great part of Spaniſh America, was acquainted with the diſpoſition, the wiſhes, the neceſſities, and the reſources of its inhabitants. He thought this ſeaſon fit for their liberation from the moſt galling of their fetters, and for the extenſion to almoſt all of them of the advantages of a free trade.

By a decree of the 2d of February 1778, this was extended to the province of Buenos Ayres, and the kingdoms of Chili and Peru; and by another decree, on the 16th of October following, to the vice-royalty of Santa Fé, and the province of Guatimala. It therefore was now permitted to all Spaniſh America, except Mexico.

The laſt decree admitted to a participation in a free trade the ports of Seville, Cadiz, Malaga, Almeria, Alicant, Carthagena, Tortoſa, Barcelona, St. Andero, Gijon, Corunna, Palma, in the iſland of Majorca, and St. Croix, in Teneriffe. The Biſcayans alone, on account of their averſion to cuſtom-houſes, as we have before noticed, were exempted from a direct participation of theſe advantages *.

The ſame regulation extended this commerce to four-and-twenty ports in America, and favoured, by an abatement of the duties paid at others, ſuch ports as required this allowance to cauſe them to be frequented. One of the principal objects of its author, was to encourage the productions of the mother country. In conſequence of which, ſeveral articles were exempted from duties for ten years from the date of the decree; ſuch as woollens, cotton, and linens of the manufacture of Spain, hats, ſteel, glaſs, &c.

With the ſame view the regulation actually excluded many articles of foreign merchandize, ſuch as cotton ſtuffs, half-beaver hats, ſilk ſtockings, and liquors of all kinds, ſuch as wine, oil, brandy, and others, known in Spain by the appellation of *caldos*. And further to excite the Spaniards to export to the Indies the productions of their own

* During the preſent war, the Prince of the Peace, by entirely changing the conſtitution of Biſcay, and aſſimilating it with that of the other ſtates ſubject to the crown, at leaſt as far as regards import and export dues, has obviated the motive which cauſed the reſtriction to which the Biſcayans were ſubjected. They at preſent (1807), in common with the reſt of Spain, are allowed to traffic with the Spaniſh colonies direct.

country, the regulation exempted from a third of the duty every veſſel wholly laden with national merchandize; and exempted entirely from duty, on being ſhipped from America, a great quantity of the productions of the country; ſuch as cotton, ſugar, cochineal, indigo, coffee, copper, jeſuits-bark, and all productions, as well of the Spaniſh Indies as of the Philippines, which had hitherto not been brought to Europe; a long liſt of benefits promiſed by the new world to the old, the enumeration and appreciation of which might perhaps decide the grand queſtion, whether the diſcovery of America has been moſt beneficial or injurious to mankind. What compenſation (if there can be compenſation) for ſome terrible preſents ſhe has made us! What number of different woods, minerals, fruits, and nutritive aliments! How many ſalutary balſams, ſhrubs, flowers, and medicinal plants! How many articles, in ſhort, calculated to increaſe our enjoyment, and leſſen our ills, and conſequently to afford man that ſmall portion of happineſs of which he is ſuſceptible on earth! Wherefore do they who poſſeſs theſe treaſures retail them with a niggard hand; wherefore load them with forms and taxes? as if fate had irrevocably decreed that evil ſhould pour down in torrents, and good but drop by drop.

The precious metals of America, which it might be difficult to claſs in either rank, made a ſeparate article in the regulation of 1778. Gold, on entering Spain, paid before a duty of five per cent., and ſilver one of ten per cent. The new regulation fixed theſe duties at two and a half and five per cent.

Certain articles of merchandize coming from the Indies are neceſſary to the Spaniards, either for their conſumption or for their manufactures. The exportation of theſe to foreign kingdoms is abſolutely prohibited by the regulation: the principal of this deſcription are ſilver in ingots, gold in every form, ſpun cotton, ſhip timber, &c.

America produces many other articles little known in Europe, and of which Spain ought to promote the exportation. And the regulation which exempts them from export duties on leaving the Indies, extends the exemption to their exportation from Spain; ſuch are certain woods, gums, plants, and drugs with which America abounds; and which, placed by nature at a diſtance from the inhabitants of the old continent, ought long ſince to have been rendered common in Europe.

All theſe meaſures would have been inſufficient, if the court of Madrid had ſuffered the numerous duties eſtabliſhed by the tarif of 1720 to remain.

The new regulation aboliſhes them all, and ſubſtitutes in their ſtead a ſingle duty, which is a certain part of their value. It is accompanied by a tarif, in which the various articles of merchandize are eſtimated; iron by weight, cloths by meaſure, ſtuffs by the piece, and other articles by the dozen. Thoſe which cannot be thus valued, are taken at the current price of the manufactories whence they come, if they be Spaniſh; or at the invoice price from the port in which they were ſhipped, if foreign. According to theſe different valuations, which leave but little room for arbitrary deciſions, the tarif ſubjects all national merchandize to a duty of three per cent., and foreign goods to one of ſeven per cent., when either are ſhipped for any one of the great ports of America; that is to ſay, the *Havannah*, *Carthagena*, *Buenos Ayres*, *Montevideo*, *Callao*, *Arica*, *Guyaquil*, *Valparayſo*, and *Conception*; and the duty is but one and a half, or four per cent., when national or foreign merchandize is ſhipped for any of the leſſer Indian ports.

Notwithſtanding the wiſdom ſhewn in the conſtruction of the regulation, it excited many complaints. It left, ſaid the complainants, much to be deſired with reſpect to the encouragement meant to be given to national productions. Why were articles of foreign manufacture excluded from the commerce of America, the demand for which the na-

tional manufactories could not for a long time to come ſufficiently anſwer, particularly in the article of ſilk ſtockings? Was not this an inducement for the merchants of Spain, convinced of the inability of obtaining enough from their own manufacturers, to engage with foreigners for a ſupply? And muſt not this neceſſary ſuccour, eaſy to be obtained in ſpite of prohibitions, cauſe their manufactories to languiſh by favouring idleneſs? The heavieſt complaint was againſt the troubleſome formalities to which the regulation ſubjected the expeditions from the ports of Spain to America. Merchants were expoſed to the caprices of favour and the inconvenience of delay, which, added to a duty of ſeven per cent. to be eluded as well in exports as imports, and to abſolute prohibitions of certain articles of merchandize, could not but offer ſeducing advantages to contraband ſpeculations. Could the name of a *free* trade, ſaid the complainants, be given to commerce thus ſhackled, for each operation of which an expreſs permiſſion was neceſſary from the miniſter; which intrigue, unwillingneſs, the ſlowneſs of the forms of office and intermediate agents, might delay too long, and conſequently render uſeleſs? Inſtead of the advantages of liberty, prohibitions, threats, and puniſhments, it was added, had been annexed to each article of the regulation.

The merchants of Cadiz were the chief complainants. Theſe only had hitherto had connexions with Spaniſh America; they were the only perſons who had capitals ſufficient for ſuch diſtant expeditions, of which the long delayed returns were expoſed to every kind of hazard. The aſſociates given them in thirteen other ports of Spain, would, ſaid they, engage in ruinous ſpeculations, which, without benefiting the colonies, would be a real loſs to the commerce of Cadiz.

The voice of ſelf-intereſt was eaſily diſtinguiſhed in theſe complaints. The experience of a few years has already been ſufficient to determine how groundleſs they were.

The following tables preſent a view of the effect of the regulation, even in the firſt year, on ſeven of the principal ports of Spain, the only ones which at firſt dared to take part in the trade thrown open to them:

Number of Veſſels and Places whence they ſailed.	Amount of National Goods. Rials.	Amount of Foreign Goods. Rials.	Amount of Duties thereon. Rials.	Mar.
63 from Cadiz -	13,308,060 -	36,901,940 -	2,677,060	
25 — Corunna -	2,787,671 -	2,673,056 -	287,397	30
23 — Barcelona -	6,531,635 -	2,100,526 -	335,360	14
34 — Malaga -	3,425,504 -	519,085 -	144,739	24
13 — St. Andero -	765,155 -	3,991,395 -	306,482	18
3 — Alicant -	211,969 -	92,340 -	12,948	10
9 — Santa Cruz -	1,606,625 -	- -	69,435	23
170 Ships. Total	28,636,619 -	46,278,342 -	3,833,424	17

Veſſels

Veſſels which returned from Spaniſh America in 1778.

To which Ports.	No. of Veſſels.	Value of Merchandize. Rials.	Marav.	Duties on Entry. Rials.	Mar.
Cadiz	57	34,410,285	13	975,534	8
Corunna	21	27,333,132	10	1,725,460	6
Barcelona	25	4,308,551	3	77,271	26
Malaga	10	989,829	8	4,790	20
St. Andero	8	4,594,099		33,602	30
Alicant	8	1,195,827	7	0	0
Santa Cruz de Teneriffa	6	1,726,568	12	111,197	16
	135	74,558,292	19	2,927,857	4

Ten years afterwards this commerce experienced a prodigious increaſe. Twelve ports in Spain, inſtead of ſeven, engaged in it. The exportation of national merchandize was more than in a quintuple degree; that of foreign more than triple; and the amount of the importations from America more than ten times greater than in 1778.

It is by a compariſon between ſimilar tables, better than by any reaſoning, that one is led to judge of the progreſs of proſperity in any nation. The reader himſelf may compare the year 1778 with that of 1788.

Table of the Trade with Spaniſh America in 1788.

Names of the Ports.	Value of National Merchandize. Rials.	Value of Foreign Merchandize. Rials.	Value of the Returns from America. Rials.
Seville	3,811,039	573,688	129,970
Cadiz	91,252,427	121,533,827	635,315,832
Malaga	12,752,045	1,347,354	11,869,524
Barcelona	29,688,392	2,083,317	35,446,496
Corunna	9,993,537	-	81,625,588
St. Sebaſtian	364,547	3,179,534	11,355,430
Los Alfalgues de Tortoſa	864,384	14,404	245,235
St. Andero	5,082,866	11,277,950	24,295,925
Gijon	61,775	1,131,992	642,091
Alicant	542,576	32,600	635,110
Palma	598,875	-	274,095
Canaries	2,210,576	1,319,624	2,863,437
	157,223,039	142,494,290	804,698,733

From

	Rials.
From this expoſition it appears, that in 1778 goods were ſhipped for Spaniſh America to the amount (national and foreign included) of	300,717,529
And that the returns to Europe amounted to	804,698,733
And thus that the returns exceeded the ſhipments from Spain by	503,981,204

What better evidence can the Spaniards, can foreigners even require of the advantages of her trade with America? Will it be denied, after inſpection of theſe different tables, that the regulationof 1788, however imperfect it may be, has yet contributed towards the vivification of the Spaniſh colonies? Even the revenue has been materially benefited by it.

In 1778, the total amount of the duties on exportation and importation amounted to	6,761,291
In 1788, they amounted to	55,456,949
Leaving a difference of increaſe of	47,695,658

Notwithſtanding this proof of the ſalutary conſequences of the regulation of 1778, even in 1788 it was the object of rather bitter diſcuſſion among Spaniards of the beſt information. They affirmed that it had been enacted with an inſufficiency of ſkill, in as much as it gave too great encouragement to fraudulent interlopers; and they endeavoured to prove it by a ſtatement with which I here preſent my readers.

Before 1778, they ſaid, almoſt half the trade of Mexico, and more than half of that of Terra Firma and Buenos Ayres, conſiſted of ſmuggling. The conſequence was, that a great quantity of piaſtres, ſtamped in Spaniſh America, went directly to foreigners.

For example, it is known as a fact that, from 1767 to 1778 inclusive, there were ſtamped	187,579,451
That of theſe there came to Spain	103,889,652
The difference between the two ſums	83,689,799

was therefore paid to contraband dealers. That if to this be added what was extracted in ingots, in produce, and raw materials, it will be evident that foreigners carried on more than half the commerce of Spaniſh America.

Moreover they add, ſince that period ſmuggling appears to have increaſed conſiderably.

It had been calculated, that in the ſix years poſterior to the eſtabliſhment of the free trade, 56,326,029 hard dollars of the whole of thoſe which were ſtamped, had left America, or annually about 9,400,000; whereas in the ten preceding years no more than 83,689,799 dollars went in that manner, leſs than 8,400,000 per annum.

Ought one not, ſaid they, to draw from this difference an inference unfavourable to the eſtabliſhment of a free trade?

And how could the regulation of 1778 be otherwiſe than advantageous to contraband trade? Spaniſh America has an immenſe extent of coaſt, which government, in ſpite of the rigid vigilance of its agents, cannot ſufficiently guard; and notwithſtanding this regulation has diminiſhed many of the charges of direct trade, it has ſuffered a ſufficient number to remain, for foreigners to be enabled to go themſelves and vend their commo-

dities to the coloniſts, at 20 and 25 per cent. leſs than the Spaniards. In order to favour national manufactures, it has laid a duty of 14 per cent. on foreign manufactures, which is augmented upon their arrival in ſome ports in America by an addition of 5, 8, and even 10 per cent., which, if reſpect be had to the difference of the prices at which they are rated, will make the whole duty from 40 to 50 per cent. on the prime value.

Two new matters poſterior to the regulation have tended to favour ſmuggling ſtill more.

1. A new tarif, publiſhed in 1782, increaſed the charge on foreign merchandize upon its entry into Spain. Spain, however, is obliged to import for her colonies linens, the greater part of the cloth which ſhe ſhips, thread, a great quantity of ſilk articles, all her mercery, hard ware, cryſtals, coarſe woollen goods, in ſhort, more than two-thirds of the conſumption of the Spaniſh Indies; all of them articles which, beſide the duties to which they are liable on their arrival in America, leave Europe with an impoſt of 14, 20, and 25 per cent. upon their coſt, according to the valuation at which they are rated on their entrance into Spain, being either leſs or more conſiderable.

2. The alteration of money has had an influence on the exchanges, which are conſtantly regulated by its intrinſic value.

Moreover, how can it be expected that the coloniſts will not prefer bartering their ingots with foreigners for merchandize, to carrying them to the mint, which receives a benefit on the coinage? or, that they ſhould not be induced to export their dollars in contraband, while there exiſts a duty of 4 per cent. upon their being exported according to law?

An additional circumſtance aſſiſts ſmuggling, in the privilege granted to Louiſiana of trading with foreigners. This colony receives from Europe direct a much greater number of articles than what it conſumes. What becomes of the exceſs may eaſily be divined.

Laſtly, The inhabitants of the Spaniſh iſlands, poſſeſſing the liberty of trading with the different parts of the American continent, take advantage of the neighbourhood of the foreign iſlands, to obtain from them a quantity of merchandize, which is diſtributed among the Spaniſh colonies.

To theſe cenſors of free trade might be objected, that the greater part of theſe circumſtances exiſted before its eſtabliſhment; that it has beſides the advantage over the former order of things, in having leſſened the duties on a great number of articles; in having relieved from many incumbrances the Spaniſh merchants of Europe and America; that from this circumſtance it muſt appear ſtrange, nay almoſt inexplicable, that ſmuggling ſhould have increaſed ſince the regulation of 1778. Doubtleſs, however, it will be anſwered, that from having greatly multiplied the places from which expeditions may be diſpatched, and thoſe at which they may arrive, the means of eluding the duties impoſed on legal commerce have increaſed, and that in a ſimilar proportion.

After all their inculpations, they yet do not aſſume that free trade ſhould be aboliſhed, but ſimply that it has been eſtabliſhed in ſuch a manner as to preſent many temptations to contraband commerce, and that it muſt excite no wonder if, upon its preſent ſyſtem, it ſhould rather become augmented than reduced.

In fact, it is evident that the Spaniard, if he buys his merchandize at the manufactory, cannot forward it to any of the ports of Spain without being liable to expences which foreigners are not ſubject to, who ſhip from their own country. Again, the freight and inſurance which he pays, loads him with an addition of three or four per cent., from which the Engliſh, the French, and the Dutch are exempt, which is however nearly compen-

compenſated by the commiſſion paid on the foreign merchandize which is ſmuggled. Here then we ſee goods in the hands of the perſons who receive them by contraband, at nearly the ſame price they coſt the Spaniſh merchant who forwards them in a legal manner. The one has to pay the charges of tranſports to the American haven, the unloading, and inſurance againſt confiſcation; theſe collective charges are no more than 7 or 8 per cent. But the other muſt pay at leaſt 14 per cent. duty on entry of his goods in Spain, 7 per cent. on their export, and more than 7 per cent. upon their arrival in an American port, which together make a total charge of 28 per cent. The ſmuggler thus has an advantage over the Spaniſh merchant who trades legally of 20 per cent., without reckoning the profit which he draws from the precious articles with which he is furniſhed for his returns, or the metals which he receives, without paying the export duty.

To place the Spaniſh merchant, therefore, upon a par with the foreign contraband trader, government ſhould exact no more than 6 per cent. on all merchandize ſhipped to New Spain. Without this meaſure, how is it poſſible that it can compete with the Engliſh, who export all their manufactured goods in peace free of duty, and in war time with a convoy duty only of 3 or 4 per cent., a modus not equal to the difference of inſurance which veſſels navigating under other flags muſt pay; with the French, who ſince the revolution pay no duties on exportation; with the Dutch, whoſe export dues are not more than 1 per cent.; or with the Danes, who have a free port in St. Thomas.

Still ſmaller impoſts ſhould be levied on goods ſhipped for the Spaniſh iſlands, and all the immediately contiguous coaſts, for the purpoſe of counterbalancing the facility for ſmuggling, which their poſition affords.

On the other hand, heavier duties might be impoſed on merchandize ſhipped for Buenos Ayres, and ſomewhat even additional upon thoſe deſtined for Peru: contraband entries being much leſs eaſy at the firſt of theſe colonies ſince the deſtruction of the colony of San Sagramento, ſituated oppoſite to Buenos Ayres, and being almoſt null in Peru and Chili.

As for Spaniſh merchandize, perhaps it would be beſt that the duty on export thereof ſhould at moſt not exceed 2 per cent. Poſſibly the diminution of revenue which this would appear to threaten the treaſury with, might be objected to by government, not yet perſuaded of the truth which in ſo keen a manner was expreſſed by Swift; that *in the arithmetic of taxes, two and two do not always make four.* But if from this reduction, of unpleaſant aſpect in the firſt inſtance, the reſult ſhould be, that the articles which commerce wafts to the Indies in a contraband manner ſhould take the legal channel, government would not be long in finding that by loſing a part of her revenue, ſhe would almoſt annihilate ſmuggling, vivify her trade, and of moſt conſequence of all, ſecure the preſervation of her colonies, greatly riſked by the clandeſtine and continual communication which they maintain with foreign nations.

Moreover, the Spaniſh government ſhould bear in mind, that it has to provide for the military and civil adminiſtration of its colonies, for the expence of public works, of charitable inſtitutions, and, in ſhort, for all important charges; that theſe expences are very far from being covered by the revenue of its mines; that trade is the only profit which Spain draws from her poſſeſſions; and that ſhould ſhe be ruined by ſmuggling, ſhe will be obliged to abandon them for want of means to anſwer the coſt of their dependency. Even this might not eventually be materially injurious to her; but ſince her glory, whether well or ill underſtood, preſcribes to her the preſervation of them, let her ſtudy to avoid the rocks againſt which theſe poſſeſſions, more brilliant than uſeful, are deſtined to ſtrike at ſome future period.

Even if there ſhould exiſt a mode of preventing ſmuggling compatible with the reſervation of the duties as they are at preſent, ſtill ought the government to leſſen the impediments to the free courſe of commerce; as ſuch a meaſure would increaſe conſumption, and conſequently benefit Spain. It already ſees that, in ſpite of prohibition, a manufactory of coarſe cloths has been eſtabliſhed in the province of Quito, and others of ſtained cloths, galoons, hats, and different articles beſides, in various parts of New Spain. Let European goods arrive there at a moderate price, theſe would fall of themſelves. Allow the coloniſts a perfect freedom to export their raw articles in return, and they would not ſuffer by changing the application of their induſtry. Agriculture of itſelf is ſufficient to employ all their hands, and procure them all the neceſſaries of life; and, with the ſuperfluity of the varied and valuable productions of their ſoil, Spain might purchaſe the produce of the ſoil and induſtry of the reſt of Europe. Hence would ariſe a commerce of barter, equally advantageous to both worlds, and the ties between the metropolis and her colonies be drawn more cloſe, by the effectuation of that real happineſs which nature appears to have intended. She has beſtowed upon Spaniſh America immenſe woods, vaſt countries exceedingly fertile, and a diſproportionate population. In ſuch a country manufactories cannot flouriſh. Every thing which draws its inhabitants from their fields and cultivation, has for a lamentable conſequence the effect of concentrating the population in towns, and leaving the country a prey to wretchedneſs.

Theſe ideas have occurred to me; and whatever may be ſaid of a free commerce, whether its advocates or its opponents be right or wrong in their aſſumptions, it is inconteſtible that ſince its eſtabliſhment the Spaniſh Indies have increaſed in proſperity. It is furthermore aſcertained that ſmuggling has materially diminiſhed ſince 1788, the epoch of the outcry that was raiſed againſt it. As a proof, the returns of 1791 have been cited. In this year there arrived from Mexico and Peru 22 millions of hard dollars. Now it is known that Mexico yields commonly from 21 to 22 millions annually, and Peru five or ſix, making together a total of from 26 to 28 millions *. If then from this

* The following preſents an account, drawn from good authority, of the product of the mines of Spaniſh America, anterior to the war of the revolution, which interrupted materially the connections between Spain and her colonies.

At the mint of Mexico, in 1790, there were coined in gold		622,044
In ſilver		17,435,644
	Total	18,057,688
At Lima, in 1789, were coined, in gold piaſtres		765,762
In ſilver		3,570,000
	Total	4,335,762
And in 1790, in gold and ſilver piaſtres		5,162,240
In the ſame year, 1790, the mines of Potoſi produced 2,204 marks of gold, which produced 299,246 piaſtres, and 462,609 of ſilver, or 3,923,176; making together		4,222,422
And at St. Jago de Chili in gold 721,754, and in ſilver 146,132; together		867,886

General Statement for 1790.

Mexico	18,057,688
Lima	5,162,240
Potoſi	4,222,422
Chili	867,886

Sum

capital it be computed that ſomewhat muſt remain in the country for its currency, it will be evident that there can be but little left for contraband exportation.

Moreover, it cannot admit a doubt that Spain has lately furniſhed America with a far greater quantity of wines, fruits, and other produce, as well as of manufactured goods, than what it had been uſed to do, or that productions before unknown have been returned; that thoſe which before came in ſmall portions are furniſhed plenteouſly, ſuch as tobacco, ſugar and coffee; that Cuba particularly has notably improved notwithſtanding at preſent it be wide of that proſperity which it is capable of attaining; and laſtly that communication between the metropolis and her colonies has become infinitely more active: lett his ſingle fact ſuffice—Before 1778 the fleet and the gallions uſed to ſail every three years. A merchant then muſt neceſſarily have been ſubjected to conſiderable expence, and to an infinity of trouble in order to obtain permiſſion for his veſſel to form a part of the expedition, which conſiſted of no more than 14 or 15 ſhips. In 1791, 89 veſſels were diſpatched from Spain to the Indies. Does not this at once anſwer the queſtion of the propriety of a free trade?

At firſt the miniſter for the Indies did not deem it proper to extend free commerce to Mexico, which remained for eight years ſubject to the ancient regulations. When he eſteemed himſelf juſtified from the numerous data with which he was furniſhed, and was ſatisfied that he had nothing to apprehend from extending a ſpecies of free trade to this vaſt colony, with which he was better acquainted than any of the reſt, he cauſed it in 1786 to participate in meaſure in the regulation of 1778, but confined the annual ſupply of merchandize to be furniſhed it, to 6000 tons; whimſical reſtriction! which evidences the predilection which Galvez had for regulating ſyſtems.

I had a cloſe acquaintance with this ambitious miniſter. He was exceedingly laborious perſonally diſintereſted, and poſſeſſed ſome talent; but with theſe, his manners were repulſive, and he aſſumed all the conſequence of a vizier. It is true he had all the power, without at the ſame time running the hazard of an Ottoman miniſter, and Charles III. had an entire confidence in him. This monarch, truly virtuous, had ſome peculiarities; he looked upon himſelf as a great tactician, and in conſequence conſidered and determined every thing that regarded the army and military plans. As for the other departments, that of his conſcience incluſive, he blindly ſubmitted them to the management of thoſe he had charged with them; and none of the miniſters profited more by this conceſſion than Galvez, who pretended at all times a difference to the *ſuperior* intelligence of the ſovereign. Marſhal Duras became acquainted with him during his embaſſy in Spain, and appointed him advocate for the French nation; this was not an idle appointment then at Madrid, although it has latterly been ſuppreſſed. It cloſely connected him with the French, and their ambaſſador. Poſſibly a near examination into our character may be more prejudicial to the forming a favourable opinion of us, than a ſlight acquaintance. However that may be, notwithſtanding the frequent communications he had with the French, he entertained towards them an averſion, that he but ill diſguiſed beneath the veil of friendly profeſſions. Mr. d'Oſſun threw this lean carp into the fiſh-pond. He recommended him ſtrongly to the Marquis de Grimaldi, who in 1763 took the port folio of foreign affairs, and to Charles III. himſelf whom he

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Sum of the produce of the mines of Spaniſh America in the year 1790 - - 28,310,236
Of which in gold there were not more than - - - - - 4,020,000
Put which does not include the produce of the mines diſcovered in the Viceroyalty of St. Afii nor of thoſe of Buenos Ayres, of which in 1790 there were thirty of gold, and twenty ſeven of ſilver, ſeven of copper, two of tin; and ſeven of lead, but what reſult had followed the working of them had not come to hand.

followed

followed from Naples to Madrid. He greatly contributed towards obtaining for Galvez an important commiſſion to Mexico, where he ſhewed his domineering and enterprizing ſpirit, and where, intoxicated with power and overcome by the fatigue of an extremely laborious miſſion, he became a prey to a malady, which was accompanied and ſucceeded by many acts of inſanity. On his return he was rewarded for his pains, and revenged for the inculpations on every head which had preceded him in Europe, by an appointment to the office of Miniſter for India; that is to ſay by an appointment, which gave him a more extenſive and unlimited authority than his poſſeſſed by any individual, not himſelf a ſovereign, upon the ſurface of the globe. In this ſituation he retained towards Mr. d'Oſſun the exterior of gratitude, towards the French nation at leaſt the *language* of attachment *. Yet of this nation he entertained a jealouſy and antipathy which he demonſtrated on more than one occaſion. His deſpotic nature was liable to irritation at the ſlighteſt contradiction. His adminiſtration ſeemed to be the ark of the covenant with which no one could touch with impunity. Whoſoever ſhould preſume to reveal or pry into its ſprings became at the inſtant a viper in his eyes. He could ſcarcely ever forgive Robinſon for publiſhing his work on America. He conſtantly retarded the tranſlation of it, under pretext that he could not have it appear without a correction of certain errors with which it was replete, and which in a ſupplement to the work, admirable in ſome reſpects according to his own allowance, he himſelf would refute by a ſtatement of facts. Before he had completed this work, perhaps before he had ever ſeriouſly thought of it, he died. As for *the philoſophical hiſtory of Raynal*, as often as it was mentioned to him, it put him in a rage. I myſelf have heard him break out into imprecations againſt certain Frenchmen, who had taken advantage of an allowance granted them for a temporary reſidence on the coaſt of Cumana, to introduce ſome copies of *that infernal work*.

Galvez diſplayed the ſame imperious and violent character in every branch of his vaſt adminiſtration. That he was extremely diligent cannot be denied, nor that he had a reſolute inclination to effect the reform of abuſes, and oppreſſive regulations. But among the moſt enlightened Spaniards it is queſtionable, whether during his adminiſtration he effected moſt good, or harm, for the Spaniſh Indies. What however is certain, he created in them, much againſt his inclinations, a diſpoſition to independence. Too deſirous of proving that an able miniſter might render them productive to the revenue of the metropolis, to which for a long time they had been a burthen; by an encreaſe of taxes, and a bad choice of collectors, he provoked an inſurrection in 1781, at Santa Fi; and one ſhortly after ſtill more ſerious in Peru. The latter was not terminated but by having recourſe to bloody meaſures, and the condemnation of the intrepid chief of the rioting band *Tapacameros*. And what inſtant did he chooſe for irritating and oppreſſing the Spaniſh colonies? The very moment in which, for motives of no greater weight, the colonies of Great Britain rebelled againſt and deſerted her mother country.

* Galvez, a man of real talent, and who knew better than M. de Bourgoing the character of the nation with which he had to deal, who from his minute attention to colonial affairs was competent to judge of the remedies for the diſorders which exiſted in the colonies, previous to his adminiſtration, and the proper time for application of them; M. Galvez, who was as well a man of ſenſe and keen diſcrimination, and had a near acquaintance with that nation whoſe character is more ſhining than valuable, and truly, and not only probably, better calculated for a ſlight acquaintance than a near inſpection; this M. Galvez had a well founded averſion towards the French. This carp, which the French ambaſſador threw when lean into the pond, with intention when fatted to ſerve up at table, although thankful to his benefactor, became ſoon not only a fat but an old fiſh; and the French found him continually too cunning to be taken by the nets they caſt for him; he was too little of a glutton to ſeize the tempting baits with which they ſought to hook him; and too little ſenſitive to be tickled out of the water.

For the purpoſe of eſtabliſhing and collecting the new taxes he had laid on the people, ſixteen thouſand officers were employed, whoſe ſalaries and miſapplications abſorbed all their receipts. Notwithſtanding this, he boaſted with unbluſhing front, that he had augmented the revenue of Spaniſh America from five millions of piaſtres to 18, the while towards the end of his adminiſtration, government was obliged to ſend remittances of money *(ſituados)* to the Philippines, to Porto Rico, to Santo Domingo, to Louiſiana and ſometimes even to the Havannah.

On the other hand, it muſt be granted, that he ſucceſsfully laboured at enlivening commerce and agriculture of the Spaniſh Indies; that La Trinidad, Louiſiana, the Philippines, and particularly Mexico, owe to him the dawn of their proſperity. I ſhall trace a rapid ſketch of what he has effected for theſe colonies, or at leaſt of the beneficial alterations contemporary with his adminiſtration.

CHAP. VIII.—*Meaſures adopted with regard to Louiſiana.—Of the ceſſion of Santa Domingo to France.—Recent proſperity of Trinidad.—Treaty of Spain for the ſupply of negroes.*

From the moment Louiſiana was ceded by the French to Spain, the court of Madrid, which to ſubjugate this colony had employed ſuch vigorous meaſures as could not fail to render its yoke odious, endeavoured to ſoften its fate by granting to the inhabitants ſuch privileges as were calculated to inſure their proſperity. In 1768, it was enacted, that merchandize going from Spain to Louiſiana, and the productions received from that colony, ſhould be exempt from all duties of exportation; and that the produce of the colony ſhould pay a duty of but four per cent. upon entering Spain. But as thoſe in the greateſt abundance, ſuch as tobacco, indigo, cotton, and particularly furs, could not find a great ſale in Spain, it was agreed that French veſſels might load with them at New Orleans, but that they ſhould arrive there in ballaſt. This reſtriction was ſo frequently eluded, that the Spaniſh government ſaw the neceſſity of taking it off, convinced that the furs, ſkins, &c. of Louiſiana could but be exchanged for goods manufactured in France.

The regulation of 1778, in addition to the other privileges of Louiſiana, exempted all furs from duty for the ſpace of ten years. Afterwards in 1782, Penſicola and Weſt Florida being added to the Spaniſh poſſeſſions in the Gulph of Mexico, it was eſtabliſhed, that for ten years, reckoning from the concluſion of the peace, ſhips ſhould be permitted to ſail from French ports to Louiſiana and Penſicola. And bring back returns of all the productions of the two colonies, that the articles, as well exported as imported, ſhould pay a duty of no more than ſix per cent.; that in caſe of neceſſity the inhabitants ſhould be permitted to furniſh themſelves with proviſions from the French American iſlands; and that the negroes, which they might procure from friendly colonies ſhould enter their ports duty free. The regulation expreſsly mentioned, that the foreign merchandize received at Louiſiana ſhould be for its own conſumption only. This reſtriction was in courſe evaded; for conſidering the numerous expeditions made to New Orleans in conſequence of the regulation, many ſpeculators would have been ruined, had their cargoes had no other market than that of Louiſiana.

This regulation of 1782 ſoon made ſome addition to it neceſſary; the people of Louiſiana were to form no commercial connexions but with France. Had the French been able to furniſh them with all the articles they required, they would have deprived the contraband traders of any benefit from fraudulent commerce by way of Florida, and the

the north of the Miſſiſippi, and would have procured at an eaſy rate the furs, beaver ſkins, and other productions of Louiſiana. But as the inhabitants of this colony conſumed certain foreign merchandize not produced by France, ſuch as Sileſian linens, Engliſh chintzes, &c. in order to ſecure the whole profit of this new arrangement to the French, it was neceſſary to obtain from the French government an allowance for the free importation of theſe articles, which might afterwards have been ſhipped from the ports of that kingdom immediately to Louiſiana. The Spaniſh miniſter confided this negociation to M. Maxent, father-in-law to general Galvez, a man whom that miniſter had reaſon in priding himſelf at being connected with, a man who in the American war diſplayed great brilliancy of talent, who had paved the way for the proſperity of Louiſiana by the mildneſs and wiſdom of his adminiſtration, and who afterwards, promoted to the viceroyalty of Mexico, was by a premature death ſnatched from his country and a truly intereſting family. The French government, fearful of injuring the revenues of the country, declined the propoſals of Mr. Maxent; and the court of Madrid was obliged to extend to other ports, ſuch as Oſtend, Amſterdam, Genoa, &c. a privilege which at firſt had been reſerved for thoſe of France.

This circumſtance however did not hinder the French from enjoying almoſt the whole of the commerece of Louiſiana, up to the period of the rupture between the two countries. They even mantained two commiſſaries in the colony for the purpoſe of ſuperintending the intereſts of their merchants.

The ſtate of Louiſiana is not materially changed from what it was at the time of its ceſſion to Spain. Its capital at that time contained 5 or 6000 inhabitants. In 1793 it did not contain more than 8000, excluſive of negroes, the number of whom throughout the colony amounted to about 25,000: that of the whole of the coloniſts might be reckoned about 20,000: the majority of which are French. If the perſons employed by government both civil and military be excepted, who are Spaniſh, few others of that nations are to be met with. The Americans have formed eſtabliſhments at Natchez, where they have introduced Engliſh cultivation with ſucceſs; and upon the right bank of the Miſſiſſipi are ſome Germans, who next to the Americans are the beſt farmers in the colony.

The extent of cultivated land in Louiſiana is yet very confined; tobacco and indigo are the only articles which have yet attained any high degree of proſperity. Nevertheleſs before the war with France it had a handſome portion of export trade, the amount may be computed at 8,400,000 leones (350,000l.) annually. But excepting a part which certain avaricious governors are ſaid to take in this trade, the reſt is confined to foreign merchants, who only eſtabliſh themſelves at New Orleans for the purpoſe of acquiring fortunes; and afterwards return to their native country: woeful circumſtance, which depriving this colony of capital without which nothing can be undertaken, deprives it of the means of diſplaying the advantages with which it has been favoured by nature.

Theſe advantages are ſo numerous and brilliant, that, when known, one is induced to pardon our forefathers for having been led aſtray by the deceptive illuſions of the Miſſiſippi ſcheme. Let the rapid ſketch here adduced ſerve for framing a judgment of them.

Louiſiana is ſituated in one of the fineſt climates. It is watered through the whole of its length by a river, which adds to the natural fertility of the ſoil, and which at its mouth preſents an immenſe outlet for all the productions it nouriſhes in its courſe.

At the head of theſe is to be placed *tobacco*, which is greatly ſuperior to that of Maryland or Virginia. Of this article 3,000,000lbs. are annually exported on account of the King of Spain; which, at 5d. per lb. amount to 61,250*l.*

The *indigo* of Louiſiana is equally good with that of St. Domingo, and conſequently much ſuperior to that of Carolina. Before the war with France and Spain a great quantity was exported to France; the amount of its annual produce was computed to be 500,000lbs. weight, which at 5s. 6d. per lb. gives for its value 137,500*l.*

Skins, for a long ſpace of time, formed a principal article of trade from Louiſiana. From 1765 to 1778 it was computed that the nature of the annual exportation amounted to 166,600; butthis commerce is diminiſhed one half by the cauſe before noticed; the merchants having no ſooner enriched themſelves than they withdraw, carrying away with them their capitals, which are abſolutely neceſſary in the fur and ſkin trade. The ſavages, with whom this trade is moſt beneficially carried on, are the Miſſouries, who bring the produce of their hunting to Saint Louis, a village the inhabitants of which conſiſt principally of Frenchmen, who are well beloved in the adjacent diſtrict.

If Louiſiana had more markets to ſend her productions to, ſhe might reap great benefit from the collection of *pitch*, and *tar*, of an excellent quality; which may be obtained in large quantities, particularly between Mobile and New Orleans.

It produces as well an immenſe quantity of *timber for ſhip building*. The value of its exports of maſts, ſpars, planking, &c. is computed at 35,000*l.* annually, beſides a number of ſmall veſſels, and even of as high a burthen as 400 tons, which are built in the Miſſiſippi, and which are equally ſtrong and cheap. Its cedar is of the fineſt quality; green, white, and red oak are very abundant, and remarkable for the ſize, height, and toughneſs of the wood; their cypreſſes make excellent maſts, and to the Weſt Indies they ſhip prodigious quantities of ſhingles, ſtaves, and boards. They ſhip annually for the Havannah 100,000 caſes of ſugar; and employ near 500 ſaw mills, of two ſaws each, which work by the riſe and fall of tide.

Immenſe flocks, and herds, furniſh them with a ſuperfluity of meat, and already form a conſiderable branch of trade, in the exportation of *hides* and *tallow*. Finally they could export, if they had a market, a number of *horſes*, *vegetable wax*, wool, hemp, and even ſilk. I ſhall ſay nothing of rice, peas, maize, &c. of which but ſmall quantities are exported, which however if added to the naval ſtores may collectively be valued at 17,000*l.* ſterling.

The French trade before the ceſſion of Louiſiana to France, employed ſix veſſels, laden with indigo, ſkins, and dollars for the metropolis, more than ſixty ſmall veſſels between New Orleans, and San Domingo, and ſome few to Martinico and Guadaloupe, laden with wood, rice, pulſe, pitch, tar, tobacco, and particularly piaſters, and which carried back all deſcriptions of European goods, and negroes.

It is at firſt ſight an inexplicable phenomenon, with all theſe advantages, that a colony ſo highly favoured by nature, and for which Spain while it was in her power, by leſſening the duties ſo much beneath what her other ſtates were taxed at, and by other privileges granted, ſo greatly aſſiſted, ſhould have made ſo little progreſs. It has now changed its maſter, and there remains to be ſeen if in other hands, and with more attention to the advantages to be derived, its race to the goal of proſperity be not as fleet as before it was tardy. The Americans appear deſtined to force Louiſiana at length to fulfil the purpoſe of nature. Already ſettled upon the great river Miſſiſippi, and upon the Meſſouri and the Ohio, whoſe tributary ſtreams increaſe its ſea of waters, they ſolicited with threatening impatience a right of paſſage to the ocean, which the regulating ſyſtem of the Spaniſh government refuſed; and which early or late they muſt have forced; when Spain in 1795 at length conceded it to them.

This meaſure, which decided the fate of the weſtern ſtates of America, and ſecured their ſucceſs, muſt naturally tend to augment amazingly the proſperity of Louiſiana.

New

New Orleans muſt become the depôt for the goods which they have to export, as well as for thoſe which they may require, and conſequently become a place of permanent attraction to ſpeculators; and the example of this fecundating activity cannot fail to enliven the whole colony. The Engliſh government was greatly pleaſed with the conceſſion made by Spain. The Miſſiſippi, obſerved their orators, comes from the North Weſt, the Ohio which falls into it from the North Eaſt. Both traverſe countries which are no where ſurpaſſed in fertility, countries which produce abundance of wood fit for the conſtruction of mills, and houſes ſuch as *oak*, *fir*, *elm*, and *walnut tree*. This wood by deſcending the rivers to their mouth will arrive cheap at the Engliſh iſlands. Theſe iſlands moreover may receive by the ſame channel as far as from Pittsburg in the ſame latitude as New York, wheat, and iron, with which they could not be ſupplied from New york itſelf, or Philadelphia, but at a much higher rate. In one word, the opening of the Miſſiſippi inſuring ſufficient ſhipments of grain for the conſumption of her iſlands will diſpenſe England from the neceſſity of proviſioning them, and greatly extend at the ſame time the diffuſion of her manufactures. Should experience juſtify the favourable conjectures of the Britiſh miniſtry, it may be ſaid, that the treaty by which the Prince of the Peace and Mr. Pinckney terminated a very knotty negociation in 1795, after thirteen years diſcuſſion, will have poſſeſſed the ſingularity in diplomatic annals, of having been directed againſt no one, and advantageous to all.

Had Louiſiana continued ſubject to the Spaniſh, in all human probability it would have reaped advantage from the happy change in its relations, and might by its connections with France have been of more actual benefit than if it formed a part of its colonies; we may at any rate be ſatisfied with our having abided by the treaty of Baſle, and being content with the ceſſion of the Spaniſh part of St. Domingo.

Spain, on her ſide, in yielding it, made no painful ſacrifice: to her it was rather burthenſome than beneficial. It is well known that within the century preceding 1784, it had been a net expence to her of 17 millions of piaſters; and that latterly it coſt her 200,000 hard dollars annually. In aſſuming this ſum, which I have eſpecial reaſons for deeming correct, it does not appear that I exceed the idea which enlightened people had entertained of its amount, ſince M. Moreau de St. Mery in his valuable work on this iſland, rates it at 1,700,000 livres, or upwards of 300,000 dollars. Notwithſtanding the Spaniſh part of the iſland was double the extent of ours, its population at the period adverted to did not amount to more than 100,000 ſouls, of which ſcarcely 3000 negroes followed agriculture; nor did the inhabitants even ten years later, according to St. Mery, ſurpaſs 100,000 of free men, and 15,000 ſlaves. It poſſeſſed ſcarcely any other cultivated lands than ſuch as were tilled by our run-a-way negroes. This colony may on the eſtabliſhment of power in the Weſt India iſlands become in our hands of more value than the whole of our Antilles. None of the valuable productions of America are foreign to its ſoil. It is capable of yeilding as much tobacco and ſugar as Cuba; as much of coffee and cotton as our former part of St. Domingo was accuſtomed to do; better cocoa even than that of the Caraccas; but all its productions, although for the moſt part indigenous, are ſmall in quantity at preſent in this colony, after having been formerly ſo plentiful, that in cocoa alone St. Domingo furniſhed a ſufficiency for the entire conſumption of Spain. There are two diſtricts on this part of the iſland well adapted to the rearing of ſheep, many ſuitable to horned cattle, its territory is well watered in every reſpect, and of an uneven ſurface. To conclude, four of its ports, *San Domingo*, *Samana*, *Port de Plata*, and *Monto Chriſto*, are well adapted for the reception and exportation of its produce.

From

From the foregoing ſketch it will be at once concluded that this new colony acquired by the treaty of Baſle is ſingularly favoured by nature, but at the ſame time all remains to be done; and conſequently, the advantages which the French may reap from it, can be looked for only at a very diſtant period.

This at the ſame time is all that can be granted to thoſe who blame the policy of our making this new acquiſition, and among their number it cannot be diſputed that there are ſome who like M. Moreau de St. Mery reaſon with much plauſibility and from incontrovertable facts. With them we are diſpoſed to agree that the French part of St. Domingo will gain by its incorporation with the Spaniſh part, neither any conſiderable means of defence, nor perhaps a greater ſecurity for its navigation in time of war; but at the ſame time, we cannot ſhare their apprehenſions of ſeeing the means of ſubſiſtence diminiſh in conſequence on the ancient French colony. From the evidence of a century paſt, of what in this reſpect has taken place between the French coloniſts and the Spaniards, it is evident, that the ſupply of cattle afforded by the Spaniſh part of the iſland to the other muſt neceſſarily be precarious as long as it is dependant upon foreign governors and adminiſtrators, with whom the rulers of the French could make no other than provincial and imperfect ſtipulations, for the obſervance of which no guarantee was afforded: whereas in the preſent ſtate it will be poſſible to make permanent, and ſtrict regulations, which will ſecure our ancient colony againſt this inconvenience.

In vain do they who are of opinion that the acceptance of this colony is impolitic, aſſume, in oppoſition, that Africa muſt be depopulated to ſupply it with the million of negroes neceſſary to open the ſoil, a difficulty of no leſs magnitude would remain to be overcome in finding capital for ſuch an immenſe undertaking; particularly after the horrible commotion which has occurred, and which will leave ſo much to regenerate in the former French colony. To them may be anſwered, that the French government lie under no obligation to effect the amelioration of the whole colony at once; and that in fact the means to be employed are not of the deſcription that they appear to indicate; ſince from the ſolemn abjuration of the ſlave trade which has been made in France, it is deprived of the means of conſecrating the Spaniſh part of St. Domingo, to that ſpecies of cultivation, which, apparently, cannot be undertaken without the aſſiſtance of negroes; that there are other modes of rendering productive a country, which by their own allowance preſents ſo many reſources, and that in the interval of the government becoming occupied with its improvement on a more extenſive ſcale, nothing oppoſes its beginning to populate and clear it, by inviting to it the numerous French families who have been ruined by the revolution, and the numerous wanderers from every country to whom all places are alike, when their diſtreſs may find alleviation, or their ſituation in life be varied for the better. Theſe new coloniſts, attracted by the beauty of the climate, by the advantages which its incorporation with the French republic holds out to them, and by the cheapneſs with which they will be enabled to purchaſe uncleared lands, would thus pave the way for the proſperity of the country, ſcarcely yet inhabited, without its becoming neceſſary to *depopulate Africa*, or empty the national exchequer.

This momentous queſtion of the policy of the acquiſition of the former Spaniſh part of St. Domingo, has been treated by both ſides with that exaggeration which diſfigures every thing by its attempt at embelliſhment, and predicts conſequences which never happen. On one hand it is affirmed, that this acquiſition will ruin the French colony; that the Spaniſh inhabitants will leave their quarters; the meadows whereon they graze the cattle, without which the French cannot ſubſiſt, will be either abandoned or

appropriated to cultivation, and the colony will periſh for want in the midſt of its plantations of ſugar and coffee. Again, how can the forces of one ſingle power protect ſo vaſt an extent of coaſt? What a robbery muſt it not occaſion the forces of the metropolis, which ſo much requires her power at home! What an unwiſe appropriation of that treaſure which ſhe herſelf is in ſuch need of!

On the other hand, thoſe who are fond of embelliſhing the future, reckon upon St. Domingo attaining in ten years ſuch a degree of proſperity as is wholly unexampled; encreaſing the imports of France by 150 millions of livres, and affording a ſupply for the neceſſities of all the world. Patriots ſo eaſily alarmed, diſmiſs your ſombre fancies; viſionaries of optimiſm, wake from your fairy dreams! Neither of your prognoſtics bear ſemblance of a likely feature. You have ſeen the deſtined pairs, whoſe amiable qualities, whoſe apparent ſuitableneſs for each other, whoſe mutual love excite ſuch tender intereſt: their wedding day arrives, how ſerious the ſtate, how deciſive of their future deſtiny! You exclaim, "on this inſtant depends their *happineſs or their miſery*". The ſentence is erroneous: they are deceived as well as thoſe who tell them ſo. They are about to paſs together thirty years of their lives without effecting either the one or the other. Thus will it be with St. Domingo, and with a crowd of ſimilar other caſes from which great wonders are expected, or great diſaſters apprehended.

I now paſs on to other colonies which are indebted to the miniſter Galvez for at leaſt the dawn of their regeneration.

Trinidad had for a long time been one of the moſt unprofitable of the Spaniſh colonies. Its ſituation at the entrance of the Gulph of Mexico, near the coaſt of Terra Firma, the ſalubrity of its climate, the fertility of its ſoil, ſcarce opened by the huſbandman, and the excellence of ſome of its harbours, on the contrary, ought to make it a valuable poſſeſſion. Galvez, in order to give new life to this palſied member of the Spaniſh monarchy, added in 1776 the iſland of Trinidad to the department of the company of Caracas. In 1778 it was included in the new regulation. The next year M. d'Avalos, intendant of the province of Caracas, conſulted and encouraged by the miniſter, took upon himſelf to people and fertilize Trinidad. A Frenchman, not leſs active than himſelf, ſeconded his intentions: this was M. de Saint Laurent, (ſince known by the name of Roume) who after living ſeveral years on an iſland of Granada, where he has acquired general eſteem, went to ſettle at Trinidad. He was previouſly acquainted with all the reſources of the iſland, had connections with moſt of the Caribbee iſlands, and poſſeſſed, in a ſuperior degree, the talent of inſpiring confidence and benevolence by his eaſy manners, and his honeſt bluntneſs. M. d'Avalos deputed him to procure ſettlers for the iſland of Trinidad. For effecting this purpoſe he propoſed a regulation, which M. d'Avalos publiſhed the beginning of 1780, without waiting for the conſent of the court, and it produced a ſpeedy effect. In the month of June 1782, there were a hundred and ſeventy-four families of new coloniſts, who had brought with them a thouſand and eighty-five ſlaves, and had begun nearly two hundred plantations of ſugar, coffee, and cocoa. However the greateſt part of the emigrants, upon whom M. d'Avalos reckoned, waited until the court of Spain ſhould make a formal avowal of the promiſed privileges; and M. de St. Laurent came in 1783 to Europe to ſolicit it. He was not ſatisfied with his reception by the jealous miniſter, who wiſhed every thing ſhould proceed from himſelf, and could ill brook that any thing beneficial ſhould take effect at the inſtigation of another. To juſtify the promiſes he had made to the emigrants, he demanded privileges which were found incompatible with the laws of the Indies; and the council, the depoſitory of theſe laws, oppoſed the ancient inflexibility of its principles. He conceived himſelf to poſſeſs a right to the acknowledgements

ments of Spain, and demanded them with that bluntneſs which ſcorns to aſk for juſtice in thoſe accents employed in the ſolicitations for favours. In ſhort the fate of Trinidad was decided without his occurrence *.

In the month of November 1783, a royal mandate appeared which weakly ſeconded the advances of the colony to proſperity. It granted to the new coloniſts, a part only of the privileges which St. Laurent had judged neceſſary; it allowed them a free trade with the French in Europe as well as in the Caribbees, but ſtipulated that the commerce ſhould be carried on in Spaniſh veſſels.

The importation of negroes, which the colony wanted, was permitted but with reſtrictions, ſtipulating ſimply that this iſland ſhould ſerve as a depoſitory for all thoſe which foreign nations ſhould bring thither. Spain could not do without theſe to furniſh her colonies. At the expiration of the famous *aſſiento*, which the Engliſh obtained at the peace of Utretcht, this charge was transferred to a company which had made Porto Rico the depoſitory of all the negroes it bought. The contract of the company expiring in 1780, Spain determined on importing her own ſlaves. With this view government had acquired from Portugal, by the treaty of peace in 1778, two ſmall iſlands near the coaſt of Africa, called Annobon and Fernando del Po. But, beſides their being badly ſituated for the purpoſe, Spain is in want of funds which are eſpecially neceſſary for the negro trade; ſhe has neither veſſels properly built for the purpoſe, nor the merchandize ſuitable to barter for negroes, nor ſailors accuſtomed to the traffic, nor ſurgeons who underſtand how they ſhould be treated; and until ſhe thus becomes upon an equality with the nations uſed to this commerce, ſhe will be obliged to have recourſe to their aſſiſtance. It is however only by degrees that ſhe will be perſuaded of this truth. Thus, at firſt ſhe had recourſe to certain foreigners, who within a ſtated time engaged to furniſh her with a limited number of negroes. Theſe partial meaſures turning out inſufficient at the beginning of 1789, ſhe adapted the plan of allowing foreigners as well as Spaniards the liberty of importing negroes into the colonies of St. Domingo, Cuba, Porto Rico, and the Caraccas. In the month of February 1791 ſhe extended this permiſſion to two years longer, and included Santa Fi in the allowance. Towards the cloſe of the ſame year appeared a proclamation ſuffering natives as well as foreigners for ſix years to go to purchaſe negroes wherever they were to be met with and diſembark them in the colonies previouſly mentioned, as well as at Buenos Ayres; with this reſtriction only on foreigners, that their veſſels on their arrival on the Spaniſh coaſts ſhould contain no other lading, not even excepting agricultural tools, the introduction of which was excluſively reſerved to Spaniards. For all the edicts iſſued by the Spaniſh government in modern times are continually ſhackled with reſtrictions and exceptions. On this occaſion this was particularly experienced by the French. They were entirely excluded from the privilege which the proclamation granted to other foreigners; the motive was clear enough. Even the moſt piou courts do not oppoſe the moſt revolting of all traffics, which is legitimatized in their eyes by the proſperity and profit it brings to their country; but by the importation of French principles they conceived there was nothing to be acquired, and conſequently placed every obſtacle in its way.

In the mean time we felt offended at the exception. Our traders ſolicited the revocation of an excluſion which was injurious to them, and in the month of May 1792 I ob-

* This eſtimable man found himſelf, as the reward of his talents and labours, abandoned to all the anxieties cauſed by a derangement of property, when Marſhal de Caſtries, who had found an opportunity of becoming acquainted with his merit, recompenſed him for the injuſtice and caprice of fortune, by nominating him commiſſary at Tobago.

tained their wiſh. It was at this inſtant that Spain, acknowledging my character, ſeemed to be reconciled for a time with the revolution. The French adminiſtration, however, at that period did not think it prudent to avail itſelf of the grant. It was of opinion, that for a trifling pecuniary gain its own iſlands would be deprived of their regular ſupply from the proprietors of ſlave ſhips, finding it more advantageous to carry their negroes to the Spaniſh colonies. It was wrong in its computation, for ſlaves are more dear in the French than in the Spaniſh ſettlements, and conſequently would ſecure the former a preference. The Engliſh were likely to be moſt benefited by the edict; their import of negroes amounted to from 40 to 45,000, and was conſequently greater than their demand; while the whole importation of the French did not exceed 25,000.

Moreover, the war which ſhortly after took place between France and Spain made a nullity of the allowance conceded to the former, and the philoſophy of our legiſlators ſhortly after annihilated the traffic in negroes. The government of Spain has not imitated the generous example. Here, however, it is juſt that I ſhould obſerve, that if this horrible practice were tolerable in any part of the globe, it would be under the Spaniſh dominion; and it is worthy of remark, that the nation which is charged with having uſed more cruelty than any other in the new world, is that which, with the Portugueze, maintains towards its negroes the moſt mild and benevolent deportment; as if ſtudious, by its preſent humane diſpoſition, to expiate, or at leaſt make amends for the cruelties of their forefathers. But let us return to Trinidad.

The court of Madrid at length followed a plan with reſpect to this iſland, bold in itſelf, but with which ſhe has reaſon to be ſatisfied. She granted to it a licence, ſuch as perhaps cannot be exampled on the ſurface of the globe. Before the American war it was almoſt a deſert, in a perfect ſtate of nature. Spain threw open its ports to foreigners of every nation. She invited them to eſtabliſh themſelves there with their capitals and negroes, exempted from duties every thing exported by Spaniards, as well from the colony as from the oppoſite coaſt of Terra Firma, and laid but a very moderate duty on whatever was exported by foreigners to alien ports. She did more: ſhe entruſted the government of Trinidad to a perſon as well informed as he was beneficent, *Don Joachim Chacon* *.

Hence has ariſen a proſperity as brilliant as rapid. The ſoil of Trinidad is calculated to produce every ſpecies of colonial production. Cocoa, indigo, cotton, and coffee have been ſucceſſively tried; but it has been found impoſſible to preſerve them from the creeping and winged inſects with which the colony abounds, and plantations of theſe deſcriptions have been abandoned. But the cultivation of ſugar is already in the moſt flouriſhing ſtate. Leſs than fifteen years ago there were ſcarcely twenty ſugar plantations, there are now more than three hundred and ſixty. From different iſlands in the Weſt Indies, particularly from the French, the diſcontented have fled to Trinidad, taking with them all their negroes. It will be no exaggeration to compute its coloniſts at ſixty thouſand at this moment; of which but few are Spaniards, many Americans, and many French, as well emigrants as patriots. There, under one of the fineſt climates in the univerſe, on a virgin ſoil, which uſuriouſly repays their labours, they forget their

* Events, however, have proved, or at leaſt have left room for believing, that his courage was not equal to his intelligence. It was he who preſided at the defence of Trinidad when the Engliſh, with ſo little difficulty, made themſelves the maſters of it in 1798. Shortly after, their governor of St. Vincent went to ſee the actual ſtate of the new conqueſt, and ſatisfied himſelf of its importance, not only with reſpect to its intrinſic value, but more particularly from its geographical poſition. The report which he made on his return to London to the Britiſh miniſtry fixed its attention ſo ſtrongly, that it was eaſy to perceive, even at that inſtant, the fixed acquiſition of this valuable colony would be made one of the articles *ſine qua non* of the future peace.

former feuds, and live in peace, protected by a wife government, which alike diſpenſes to every one both happineſs and protection. The new-comers received advances of agricultural implements, and even capital, the value of which was rigorouſly reclaimed at the expiration of three years. If they bring capitals, they buy ſuch plantations already begun as are on ſale; or grants of lands not then ſold are made them from the crown, the price of which is paid after their being brought into a ſtate of production. The rights to which the coloniſts owed their proſperity were, in 1796, prolonged for eighteen years; in leſs time than that will Trinidad become as flouriſhing as any other colony of the new world *.

Chap. IX.—*What the Spaniſh government has done for the Philippines and Mexico.—Working of the mines.*

LOUISIANA and Trinidad are not the only colonies, the regeneration of which has been undertaken by modern Spain; yet is there one at the extremity of Aſia which ſeems to accuſe the metropolis of taking too little intereſt in ſeconding the bounties of nature. I ſpeak of the Archipelago of the Philippine iſlands, which, if the Marianas be included, comprize a poſſeſſion more extenſive than France, Spain, and Italy joined together. Not only does every requiſite of life abound in them, they at the ſame time produce abundance of ſhip timber, woods proper for dyeing, ſeveral iron mines, and rivers navigable a long way up the country. Cotton, tobacco, indigo, and ſugar thrive in that ſoil; ſome gold is alſo found among the ſand of certain rivers. The vegetable kingdom is rich beyond meaſure. Sonnerat brought away from there in 1781 near ſix thouſand plants before unknown in Europe. The number of ſubjects who acknowledge the Spaniſh dominion is upwards of a million, without including the wild natives who live in the woods, and of which the enumeration would be almoſt impoſſible.

Convinced of the impoſſibility of eſtabliſhing a regular and well ſupported commerce between them and the mother country, the Kings of Spain have confined their efforts to beſtowing on them a communication, by the port of Acapulco, with the weſtern coaſt of Mexico. The famous *Nao* (Galleon) which every year makes the voyage from Manilla to Acapulco, acroſs the South-Sea, is generally known. It was, for the moſt part, by this route that Spain communicated with the Philippines; a communication without profit for her European ſubjects, and of which the principal advantage was reaped by the Chineſe, the Armenians, and other nations who frequent the eaſtern ocean. Even the revenue derived no advantage from it; for the moderate produce of the duties was not ſufficient to defray the expences incurred in their collection. The civilized inhabitants of the Philippines, without cultivation or induſtry, had no other reſource than in the commiſſions to which their ſituation was favourable. Like Spain in Europe, the

* Such was the ſituation of Trinidad when the Engliſh took poſſeſſion of it; now that is ceded to them by the treaty of Amiens, they will not fail to make their harveſt of all the advantages which it holds forth. The principal one for them will be the poſſeſſion of a colony abutting upon the Spaniſh coaſt of Terra Firma, and the being enabled to ſupply it abundantly with the produce of their manufactories; poſſibly they may not neglect it in other points of view. Trinidad, to which nature has been prodigal of all deſcriptions of wealth, contains much treaſure worthy of the attention of the naturaliſt. It was with a view to the diſcovery thereof that our government, with the conſent of the court of Madrid, and provided with a protection from Great Britain, diſpatched the frigate La Belle Angelique in 1796, under the command of Captain Baudin, for Trinidad, with ſome of our learned men, ſkilled in natural hiſtory and botany. This object, of which circumſtances have permitted no more than the outlines to be ſketched, will no doubt be completed by the Britiſh government, and leave ſcience nothing to regret from the change of maſters which this colony has undergone.

iſland

iſland of Luconia, or Manilla, which is the principal of the Philippines, was only a channel through which the piaſtres of Mexico paſſed to the Indian nations; ſo that, notwithſtanding the enormous ſums of money which commerce has carried to theſe iſlands ſince, the time of their conqueſt, there remains in them but a very moderate quantity.

Their defence was as much neglected as their interior proſperity. It may be recollected with what eaſe they were taken in the war before the laſt by the ſame General Draper who commanded at Minorca under General Murray, when that iſland was ſurrendered to the Duke de Crillon. Spain has profited by the leſſon. The preſent monarch has ordered the port of Cavite, at the bottom of which Manilla is ſituated, the capital of the iſland of Luconia, and the reſidence of the governor, to be fortified; and in the American war this important place was in a ſituation to brave the renewed attack of the ſame enemies.

In the mean time, the miniſter of the Indies endeavoured to excite the induſtry of the inhabitants, who, notwithſtanding their ſupineneſs, from which the appearance of gain is alone calculated to awaken them, have the greateſt aptitude to manufactures, agriculture, navigation, and the building of ſhips. Already had cotton manufactories been eſtabliſhed at Manilla, and ſucceeded. Already had it been frequently in contemplation within the century to enliven the colony by means of a company.

In 1733, the miniſter Patinpo propoſed the eſtabliſhment of a company, which was to have a duration of twenty years, and to which privileges were to be granted which appeared incompatible with the laws of the Spaniſh Indies. It was not, however, from the inflexible council of the Indies that the oppoſition proceeded. The court of Madrid was obliged to yield to the repreſentations of the maritime powers, who maintained that this eſtabliſhment was contrary to exiſting treaties, which ſtipulated that Spain ſhould not trade to India by the Cape of Good Hope.

In 1767, Muſquiz, miniſter of finance, in other reſpects by no means of an enterprizing ſpirit, conceived a bolder project ſtill, which was that of forming a company, compoſed half of French and half of Spaniſh, to trade to the Philippines; a trade of which the French would have reaped the principal advantages, by amalgamating it with that of her Eaſt India Company. The Duke de Choiſeul, who was fond of the grand, who as well imagined that his aſcendancy over the Marquis di Grimaldi would make every thing practicable, received the propoſition with enthuſiaſm; nothing, however, reſulted from the plan.

It was renewed in 1783, but in a different ſhape, and at the inſtance of three different perſons. The one was M. d'Eſtaing, who was deſirous of repaying, by proofs of zeal towards Spain, the grandeeſhip with which ſhe had inveſted him. Shortly after, the Prince of Naſſau Siegen, who, in his voyage round the world, had acquired ſome grand ideas, propoſed to enliven the Philippines by attracting coloniſts from Europe, by opening one of the ports of theſe iſlands to the Chineſe, who require nothing better than an aſylum in this quarter, and by eſtabliſhing a ſufficient force to check a Mahommedan nation of pirates, called *Moors*, which infeſt the ſhores of the Philippines, and which Spain was unable to deſtroy, notwithſtanding ſhe conſecrated annually 200,000 piaſtres towards carrying on a war againſt them. He offered to preſide himſelf over the eſtabliſhment; but his offer was coolly received, and it fell to the lot of M. Cabarras to ſucceed, where ſo many before him had failed.

Galvez, whoſe uneaſy jealouſy had inſenſibly become accuſtomed to the ſight of a young Frenchman applying himſelf to the regeneration of his country, felt inclined to concert with him that of the Philippines. They took advantage of the tendency of the

Spaniards towards uſeful enterprizes, to cauſe the project of a direct trade between Spain and the iſlands to be adopted.

Circumſtances were propitious. After divers fluctuations, credit and confidence ſeemed to be conſolidated, and the Spaniards began to accuſtom themſelves to riſk adventures. Monied men became leſs fearful, gave at length an employment to their capitals, which miſtruſt and cuſtom had prevented them from putting to uſe. The company of the Caraccas was on the point of being diſſolved, and its ſhare-holders receiving back their inveſtments, were anxious for an opportunity of replacing them to advantage. This was therefore the fitteſt time for the eſtabliſhment of a new company, which, undertaken under the moſt happy auſpices, might inſpire confidence and a deſire of gain. The plan was diſcuſſed and approved of, in July 1784, in a junto compoſed of different members of adminiſtration, and at which the miniſter of the Indies preſided. It was propoſed to form a capital of eight millions of hard dollars, divided into 32,000 ſhares, each of 250 dollars, and to employ this capital in trading from Spain to the Philippines. The advantages which Spain would have over the other European ſtates, in carrying immediately from Mexico to theſe iſlands the piaſtres which other nations could not convey thither but by a prodigious circuit, were enumerated. It was attempted to be proved that Spain, thus importing from their ſource the merchandizes of India, ſo much ſought after in Europe, would receive them upon better terms, might furniſh them to her colonies and European ſubjects, and at the ſame time find a market for them in other nations.

The plan approved of by the junto received the ſanction of the King, who as well as his family took an intereſt in it, and means were immediately ſought for to carry it into execution. In it was placed, as we have formerly obſerved, 21,000,000 of rials, ariſing from the exceſs of the value of the ſhares in the bank; and that the ardour which ſeemed to be awakened might not be abated by delay, directors and other perſons were immediately named for the new eſtabliſhment, and the patent of its inſtitution was prepared and publiſhed.

It ſtated, that the veſſels deſtined to this commerce ſhould ſail from Cadiz, double Cape Horn, put into the ports on the coaſt of Peru, and thence take piaſtres ſufficient to make their purchaſes, croſs the South Sea to the Philippines, and bring their returns immediately to Cadiz, taking their courſe by the Cape of Good Hope.

This precipitate zeal, which ſeemed to be a contraſt to the ſuppoſed ſlowneſs of the Spaniards, and which rather exhibits a mixture of French ſpirit, was ſeconded by a circumſtance which happened very opportunely. The company of the *Gremios*, of which we have ſeveral times ſpoken, this company, which ſpeculates in every quarter, which obtains any favour, any privilege, and any commiſſion it requires from adminiſtration, but which of late is open to the charge of being more attentive to making the fortune of its agents, than to the ſecurity of the funds with which it is entruſted; the Gremios, I ſay, had already ſent ſome ſhips to the Philippines; and notwithſtanding they had not ſucceeded, were preparing to make another experiment, when the plan of the new company was under conſideration.

The Gremios were offered a part in the project, and had declined accepting the offer. They haſtened the departure of the veſſel which was preparing for Manilla; but the elements, more favourable to the views of the miniſter than their intentions, ſoon obliged it to return to Cadiz, after having received conſiderable damage. To have repaired and refitted it would have been expenſive, and muſt have required time. Government offered to purchaſe the veſſel and cargo, and the propoſal was accepted. Thus was the firſt expedition undertaken by the Philippine company, at the very inſtant of its eſtabliſhment.

Like

Like all new eſtabliſhments, this company had ſome enthuſiaſtic admirers, and ſome bitter cenſors. Theſe could not conceive how Spain, which had colonies much nearer to her, and which were deſtitute of population and induſtry, could think of improving firſt her moſt diſtant poſſeſſions. It was a matter of ſurpriſe to them, that the management of trade which was to extend its branches to the moſt diſtant parts of Aſia, ſhould be entruſted to three directors, not one of which had ever doubled the Cape of Good Hope, and who had no other knowledge of the Eaſt Indies than what might be looked upon as doubtful and incomplete. They thought it certain that Spain could never advantageouſly enter into competition with nations who were experienced in the traffic, and poſſeſſed all the benefit of priority. They looked upon this enterpriſe as no other than an additional outlet for thoſe metals, of which Spain is but a depoſitary for an inſtant. In India every ſtation was already occupied; every port, every compting-houſe, every market was poſſeſſed by one or another power. Was then the Philippine Company to carry its ſpeculations to China? In that caſe, at the very outſet ſhe would have to contend with rivals tremendouſly formidable. And what, at any rate, could they draw from that country? Tea? It is hardly known in Spain; and other countries poſſeſs the means of importing it themſelves, as well as of preventing any ſupply through her bottoms. Porcelain? This is a cumberſome article, and would find but little demand. Silks? Would ſhe diſtreſs the manufactories eſtabliſhed at home? Of theſe different conjectures the latter appeared to be the moſt reaſonable; and, conſequently, the patent had ſcarcely made its appearance before the ſilk-weavers of Catalonia made the moſt earneſt repreſentations to government, and preſſingly petitioned againſt the meaſure.

Nothing can be deduced from the bad ſucceſs of the firſt expedition. It was the conſequence of a circumſtance which will not again occur. Galvez, conſtant in his plan of directing arbitrarily whatever belonged in any ſhape to the duties of his adminiſtration, in the interval of the arrival of the commiſſaries of the company at the Philippine Iſlands, gave the management to the governor. A ſtranger to commerce, the only articles which ſtruck him as proper to take from China were tea, muſlin, and other merchandize rejected by other nations; ſo that as a conſequent reſult of this ignorance, the firſt cargo remained at Cadiz not entirely ſold even in 1792.

The ſucceeding expeditions were more fortunate. Of three veſſels which ſailed together, one, it is true, met with damage, which it repaired at the Iſle of France; the two others however happily returned to Cadiz at the end of 1787, where their cargoes were bought up with avidity, and ſome articles of them ſold at 50 per cent. above the value at which they were rated upon their firſt arrival. Malevolence would not take this momentary ſucceſs for a prognoſtic of its future welfare; it attributed it to the novelty of the matter, and the ſmall quantity of merchandize brought by the company; and maintained, not without ſome probability on its ſide, that if a taſte for theſe articles became eſtabliſhed in Spain, they would be furniſhed at a cheaper rate by ſmugglers.

It ſurpriſes and excites one's indignation when jealouſy and envy, finding ſhelter in the breaſts of little minded men who accidentally fill eminent and commanding ſtations, ſacrifice the public good to the gratification of their invidious appetite. Larena, maliciouſly diſpoſed towards the founder of the Philippine Company, entertained a ſimilar averſion for the eſtabliſhment itſelf; and contraband trade, in conſequence, met with an abettor in the perſon who ſhould have been its moſt inimical opponent. He allowed all merchants to import muſlins on the ſame terms as the Company. He impoſed a duty of 23 per cent. on worked or printed India goods which were brought from Canton. This was giving theſe goods, which are vaſtly inferior to the manufactures brought from

from the Coromandel coaſt by the other nations of Europe, a rivalſhip which could not fail to be highly detrimental. It is true, the importation of goods of a ſimilar deſcription from any European port was ſtrictly prohibited in Spain, but at the ſame time it is well known, that there is no merchandize whatſoever but may be introduced into the country for a premium of 12 per cent. Such Spaniards therefore as might prefer Indian muſlins would have an advantage of 11 per cent. in purchaſing thoſe which might be ſmuggled.

What chance of ſucceſs with ſuch oppoſition to its meaſures could there remain with the Company? Notwithſtanding this, it ſtill maintained its ground. In 1792 its capital was yet entire, and its ſhares, after having fallen to a diſcount of 50 per cent., had again riſen to par. The directors had produced their ſtatement of balance, and ſatisfied the proprietors that, allowing the ſtock to be ſold at a loſs, and computing for ſeveral caſualties, there yet would be a profit left.

In 1795 the Company had made a profit of 22,000,000 of rials, £250,000 ſterling; and the three dividends which it has hitherto made in 1793, in 1795, and 1796, have been at 5 per cent. each. Government, in order to compenſate for non-arrivals, latterly granted it permiſſion to introduce into Spain from European markets the value of 9,000,000 of plain India muſlins. It has hitherto employed in the trade ſixteen veſſels of from five hundred and thirty to eight hundred and eighty tons; fourteen of which have returned to Cadiz, and three are at ſea. Beſides theſe the merchants, on account of the Company, have made ſeventeen expeditions, as well to the Caraccas, and Murucaybo, as to Lima, all of which have arrived ſafe; and in 1796 they had a very profitable year from the re-ſale of the returns of American merchandize and cocoa.

This apparent good fortune does not however prevent many impartial judges from auguring ill of the eſtabliſhment; and without participating in the animoſity of the enemies of its founder, may it not even now, as it was in 1784, be regarded as more hurtful than beneficial, more brilliant than ſolid? It will doubtleſs be obliged to abandon the importation of tea, difficult to be diſpoſed of in the North, and more than ever ſo in England; it has no market in the middle of Europe, and can only find one in Spain by becoming a ſubſtitute for chocolate, and thus injuring ſeveral colonies whoſe proſperity is of more conſequence to Spain than that of the new company. Would not the ſales of its ſilk be injurious to the national manufactures of that article, which are at preſent in a flouriſhing ſtate, but which require aſſiſtance rather than diſcouragement? And as to its muſlins, would it not be more advantageous to Spain to manufacture the raw cotton which ſhe extracts from her colonies, and thus employ her idle hands at home; than to tax herſelf by contributing to the nouriſhment of diſtant induſtry, in order to ſatisfy the expenſive caprice of her European ſubjects?

Spaniards, allies, open at length your eyes to your true intereſts. The ſtructure of your proſperity is at leaſt begun. The ground is cleared from the rubbiſh with which it had been covered by two ages of ignorance and bad calculation: the plan is ſketched out; be careful of the foundation; there will afterwards be time enough to attend to the embelliſhment of the front.

What government has effected for ſome time back for the benefit of Mexico, is at leaſt traced after a better plan, and undiſputed ſucceſs has crowned its efforts. Galvez entertained a particular predilection in favour of this vaſt and rich colony, the theatre of his activity, his talents, and ſome of his extravagances. To him, in great meaſure, is owing its flouriſhing ſtate, which not only has tended to benefit the metropolis in return, but has extended its influence to foreign nations alſo; ſince the Mexicans, increaſing in wealth and population, have become proportionably anxious for the enjoy-

ments of the comforts and luxuries of the whole world, and thus furniſh a daily augmenting market for the productions of European induſtry.

Galvez patronized the culture of wheat in this province; and for twenty years paſt its growth has been equal to its conſumption; and may in time become adequate to the demand of the whole of Spaniſh America.

Tobacco, which he introduced into two diſtricts adjoining the capital, has become in a few years the principal ſource of the revenue which the metropolis draws from its colonies.

The miners of Mexico eſpecially are highly indebted to Galvez; and, as a pledge of gratitude, have ſettled on him a conſiderable annuity, reverſible to his deſcendants. For ſome time the mercury of the mines of Guancavelica, at firſt ſo abundant, were no longer ſufficiently productive for working the mines of Mexico. That of Almadin, the laſt village of La Mancha, on the confines of the kingdom of Cordova, had almoſt ſingly ſupplied them. Galvez, by improving its works, procured a much larger quantity from them. Before his miniſtry it yielded no more than ſeven or eight thouſand hundred weight annually; he doubled its produce, and made an arrangement with the miners by which the hundred weight, which formerly uſed to pay 80 piaſtres, was afforded them at forty-one. The conſequence was a notable augmentation in the produce of their mines. In 1782 they already yielded 27,000,000 of piaſtres, and would have afforded 30,000,000, if there had been ſufficient mercury, but at this period a defect in the conſtruction of the galleries of the mines of Almadin had occaſioned an almoſt total inundation, and ſuſpending the working of it, the Spaniſh government in 1784 concluded a treaty with the Emperor of Germany for ſix years, by which Spain was to be furniſhed with 6000 cwt. annually, from the mines of Idria in Auſtrian Iſtria, at 52 piaſtres per cwt.

The miners have thus obtained the means of continuing their work, which has of late years been more productive than ever, happening very opportunely for aſſiſting Spain to bear the expences of her war with France.

It is not eaſy to determine with exactitude the quantity of gold and ſilver which is annually collected from the whole of the mines of Spaniſh America *. Theſe metals are coined at Lima, Santa Fi, Carthagena, and particularly at Mexico; but ſome is exported in bars either legally or by contraband. It would ſeem however that the quantity might be calculated from a knowledge of the amount of the duties which are paid upon the whole of the American mines. But theſe duties have materially varied ſince the conqueſt of the country, and are not alike in every part of Spaniſh America.

At firſt, a fifth part was exacted from all the mines, except a few which were taxed as low as a tenth, and ſome even a twentieth part.

In 1552, Charles V. cauſed an additional duty to be added of 1½ per cent., as a payment for the caſting and eſſaying, a duty known in Peru by the name of *Cobos*.

At a later period the fifth part levied formerly, and which the greater part of Europe ſtill imagines to be in force, was reduced to a tenth for Mexico and Peru; and for the viceroyalty of Santa Fi to a twentieth of the gold, the only metal which it has produced for a long time back, the duty of *cobos* ſtill continued in each of theſe viceroyalties.

In 1777 an alteration in the duties took place as far as regarded gold, which throughout all America was taxed at no more than 3 per cent.

And, laſtly, ſilver mines being found in 1790 at Santa Fi, they were aſſimilated with thoſe of Peru and Mexico.

* Compare this with the laſt note of Chapter VII.

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The ſum of duty paid therefore on ſilver is 11½ per cent, and on gold 3 per cent. only. From theſe duties, by knowing the amount of the King's duties, one might be enabled to aſcertain what is the amount of the productions of the mines to a nicety, but with the returns which are brought to Europe on account of the King, other duties paid in America are confounded; ſuch as the cuſtoms, the profit on the re-ſale of certain objects, ſuch as mercury, paper, &c. Hence it is clear, that the real annual produce can only be identified by thoſe initiated into the arcana of finance.

In order, however, to form a near conjecture, the following data may be added to thoſe which we have previouſly given.

It is aſcertained that, on an average of late years, Mexico alone has yielded from 20 to 25 millions of piaſtres; that, at Vera Cruz, one fourth part more of metals is embarked than at all the other ports together, including Lima, at which port one half of the metals are ſhipped, produced elſewhere than in Mexico. Taking therefore the product of the mines of this latter viceroyalty to be no more than 20 millions, the reſt of America will furniſh fifteen, of which ſeven and a half will be the portion afforded by Peru.

From this calculation it follows, that of late years the mines of Spaniſh America will have yielded annually 35,000,000 of dollars; an amount, the enormity of which would almoſt make me doubt of the exactitude of the data, notwithſtanding the ſource from which my information is derived. If however, as appears to be the caſe, the produce of the mines continue annually increaſing, ſhould we not have room to be alarmed at the maſs of circulation which it muſt occaſion in Europe, if there were not a trade to Aſia and China to abſorb the ſuperfluity?

This progreſſive increaſe is without doubt profitable to the individuals to whom the mines belong, whoſe revenue increaſes with the produce. But is it equally beneficial to Spain conſidered as a nation?

This weighty doubt full well deſerves a queſtion.

Supported by the evidence of the laſt century, many well informed ſtrangers would not heſitate in anſwering this queſtion. They would ſay, (and meet with more than one good citizen beyond the Pyrenees of their opinion,) that this exceſſive multiplication of currency oppoſes the actual diſpoſition of the Spaniards to manufactures; that the price of every thing as well in Spain itſelf as in other countries muſt keep pace with the increaſe of coin; that if Spaniſh induſtry be ſo far exerted as to retain at home this augmentation of currency, at preſent employed in paying the balance of trade to foreigners, the conſequence will ſhortly be that the enhancement of the price of labour will again put a ſtop to induſtry in the midſt of its career, and cauſe it to retrograde in an everlaſting circle, whoſe rounds it will never be able to exceed.

Upon this principle one would adviſe the Spaniards thus: "Far from attempting to extract from your mines the whole of what they are capable of producing, rather let a part of them be cloſed: reſtrict the exportation of your metals to the old continent to the quantity neceſſary for replacing that diminution which inſenſibly takes place, the conſumption which luxury makes thereof for furniture, and what the covetous hoard up, either in Europe or in Aſia. Follow the example of Portugal, which limits the digging of its diamond mines, in order not to leſſen their value; and that of Holland, which burns the ſurplus of her ſpices as ſoon as her abſolute demands are anſwered. In the ſilver of Mexico behold your diamonds, your ſpices. If you treble the amount of their productions, your miners, whoſe ſtrength might be better employed, will undergo more labour, but make you none the richer. You will have as a conſequence to pay a triple price for foreign manufactures which you cannot do without.

To theſe arguments, certainly ſpecious, this is the anſwer in Spain: "For our part, we ſee nothing alarming in this increaſe of currency: in the firſt place, the revenue is benefited by it; and, while all the other ſtates of Europe are employed in augmenting their revenue, which in this enhancement they find the means of bearing up againſt the expence of grand enterpriſes in peace as well as in war, by what fatality is it, that Spain alone ſhould meet her ruin in what cauſes the proſperity of other ſtates?

"We may ſay the ſame of our manufactories. Should they increaſe in proportion with the augmentation of the revenue of our mines, our currency will at that rate become the more abundant by the addition of thoſe ſums which we have heretofore been accuſtomed to pay for foreign manufactures, as well as the ſurplus of Mexico and Peru. Yet even in this caſe we ſee nothing to intimidate; we wiſh rather to know which are the moſt flouriſhing nations. Are they not England and France? and do they not poſſeſs beyond compariſon the moſt abundant currency? Of what conſequence is it from what ſource it flows? Joint produce of our mines and our induſtry, our wealth will not be leſs uſeful to Spain in the hands of great capitaliſts, who will embelliſh our towns, and our fields, and furniſh funds for public eſtabliſhments, of which, in critical caſes, the ſtate may borrow money, or meet aſſiſtance from at a leſs burthenſome expence than heretofore. We are willing to allow that a period may arrive when our proſperity, having attained its acme, may bring on our decline; a period when our artiſans and manufacturers may become ſo active and perfect as to render all recourſe to foreigners for ſupply no longer neceſſary; if, while in ſuch a ſtate of proſperity, the produce of our mines ſtill continue to augment our currency without any channel for its paſſage from us; aſſuredly in ſuch a ſituation, the idea of which may be looked upon as chimerical, would carry with it an unavoidable inconvenience. The exceſſive price of manual labour in Spain would invite foreign manufacturers in ſpite of every prohibition; the national manufactories would be at a ſtand for want of ſale; their uſeleſs hands by degrees would diſappear for want of employment, and Spain be given up anew to depopulation, idleneſs, and poverty. At preſent, however, we are far from the circumſtances which would juſtify ſuch an aſſumption, and, until more imminent danger condemn either our manufactures, or our miners to inactivity, we deem it not amiſs to draw from this double ſource the means of our future proſperity."

Whether this reaſoning be juſt or no, it has formed the baſe of the plan followed by Spain for ſeveral years. She is perſuaded that her greateſt ſplendor is to be derived from the full activity of her manufactories, and the abundant productions of her mines.

Experience hitherto appears to eſtabliſh the excellence of her plan, but is it well adapted to the poſition, manners, and political intereſts of Spain? Are there no other means of enlivening at once the metropolis and the colonies? Repeatedly have ſchemes been propoſed which had this grand object in view. I ſhall ſay nothing of one for which neither Spain nor any other European power is yet ripe. I ſhall not obſerve that, following the dictates of wholeſome philoſophy, the court of Madrid ought to proclaim the independence of its colonies, and take advantage of the enthuſiaſm which this act of generoſity would not fail of exciting to eſtabliſh between the two countries treaties of friendſhip and commerce, much more ſolid in themſelves than the ties ſtipulated in treaties formed upon intereſt and intrigue. No, there were no ſuch painful efforts at any time propoſed to Spain.

About ten years ago a project was propoſed to the court of Madrid which would have entirely changed the face of the commercial world to the advantage of Spain. The project was not to cut through the iſthmus of Panama, as more than once had been in contemplation, but to open a communication between the gulph of Mexico and the South

Sea; and thus at once reſolve the problem of the moſt eaſy method of ſhortening the commercial correſpondence between Europe and the induſtrious and fertile parts of Aſia.

Beſides the old ſcheme of joining the two ſeas by means of the river *Chagu*, which is navigable as far as *Cruzes* within five leagues of Panama, there was a ſecond which ſhould effect this junction by a communication cut between the rivers *Chamaluzin* and *San Miguel* in the gulph of Honduras. Both the one and the other in the reign of Philip II. had been found impracticable. That which was propoſed in the reign of Charles III. ſeemed to have obviated every objection, and united every advantage. It conſiſted in profiting by the *Rio Sant Juan*, which has its ſource in the lake of Nicaragua, and empties itſelf into the gulph of Mexico. This lake is ſeparated from the South Sea by an iſthmus no more than twelve thouſand fathoms wide. Its neighbourhood abounds in commodities of every deſcription, and wood fit for ſhip-building. From the courſe of flowing rivers, the waters of the lake muſt neceſſarily be either above or in the level with both ſeas; there conſequently could be no foundation for the apprehenſion of any flood or violent eruption.

The adoption of this plan would not only have rendered the lake of Nicaragua the center of the moſt brilliant commerce in the univerſe, but, at the ſame time, of the Spaniſh army and navy for the Eaſt Indies, and the market for all the valuable productions of both Americas.

This fine proſpect did not dazzle the Spaniſh government. The authors of the project were French, and it began to be tired of ſeeing foreigners, and particularly Frenchmen, continually propoſing grand enterpriſes. In this inſtance the inconveniences ſtruck them now more forcibly than the advantages. It would for ſeveral years have attracted the attention of importunate obſervers to the moſt valuable, the central part of her American dominions. What facility would it not have afforded theſe unwelcome gueſts to implant all along this coaſt, and from the bottom of the vermillion ſea to the ſtraits of Magellan the ſeeds of inſurrection, which had been but too much encouraged already by her eſpouſing the cauſe of the free Americans? What plenteous means of ſtocking all her colonies with contraband articles, and particularly thoſe who, more civilized and wealthy than the reſt, had a greater taſte for, and ſuperior means to purchaſe the luxuries of Europe? On the other hand, if the execution of this project were really to promote the ſplendor and force of Spain in the New World; had ſhe the right to flatter herſelf, that the other powers of Europe would tacitly ſuffer it to advance to its completion? And in this laſt poſition would ſhe not have rather been working for dangerous rivals than for herſelf? Could ſhe expect to reſerve excluſively for herſelf the enjoyment of communication? She had no longer the bulls of Alexander VI. to oppoſe to the navigating powers, or the cupidity of merchants. The paſſages muſt conſequently be kept open to all powers. This would be therefore granting to all a tranſit at all times through the center of her poſſeſſions, and furniſh them with an opportunity of ſtopping and reſiding there under various pretences. What advantages could compenſate for the inconveniences of a ſimilar ſuper veyance? The nations whom nature has condemned to ſuch a poſition, ſuch as the Turks with reſpect to the Dardanelles, and the Boſphorus of Thrace, muſt neceſſarily ſubmit to their fate; but ſurely it would be the very height of folly in a nation to create for itſelf ſuch a pregnant ſource of quarrels and danger.

Such, without doubt, were the conſiderations which prevented the court of Spain from countenancing the project of which I have given the outline. Doubtleſs it will, at ſome future period, be carried into execution, but it will be by a neighbouring nation,

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by a new people who in the firſt effervescence of liberty and commercial genius, will break through the mounds which prevent its courſe, as they have already forced their way by the mouth of a great river to the ocean. Poſſibly it will fall to your lot, ſpeculative inhabitants of Kentucky, to ſerve firſt the tea at your tables, and clothe firſt your wives and daughters with the rich dreſſes that you yourſelves will have brought from India without making the tour of South America or doubling the Cape of Good Hope. But Spaniards, who have exhauſted themſelves in grand enterprizes, who are timidly circumſpect and cautious as age; Spaniards could with difficulty embrace ſo bold an undertaking, particularly with a council for her Indian affairs, which religiouſly and obſtinately maintains its ancient maxims, and a miniſter at its head eſſentially jealous and ever ready to take umbrage.

Spain has effected a great deal, in throwing off the yoke of many prejudices with which ſhe was ſhackled, and which kept her and her colonies in a ſtate of mortal languor; in eſtabliſhing manufactories, in making roads and beginning different canals, in having granted a ſort of free trade to her Indies; in one word, in having produced a notable increaſe of induſtry, augmented the riches, and given a ſpur to the activity of her population. This is ſufficient to refute by facts a part of the heavy blame with which the reſt of Europe has been accuſtomed to load the Spaniards, the appreciation of whoſe character ſhall be the objects of the next chapters.

CHAP. X.—*Character of the People in general.—Some traits in that of the Spaniards.—High Spirit.—Gravity.—Slowneſs.—Idleneſs.—Superſtition.*

IT is not an eaſy matter to delineate the character of a nation. Almoſt all repreſentations of this nature may be likened to thoſe portraits which, from a maſter's hand, and traced by a brilliant pencil, poſſeſs every other merit but that of an exact reſemblance. It is not from ſimilar deſcriptions that any idea of a modern people can can be formed. Since Europe has become civilized from one extremity to the other, its inhabitants ought rather to be claſſed, according to their profeſſions, than their country. Thus, although not all Engliſhmen, all Frenchmen, or all Spaniards, reſemble each other, yet among theſe three nations ſuch as have received the ſame education, lead nearly the ſame kind of life. Thus all their lawyers aſſimilate in their attachment to forms and ligitation, all their learned in pedantry, all their merchants in cupidity, all their ſailors in rudeneſs, and all their courtiſans in ſervility.

In order to produce a nation, the moral and phyſical phyſiognomy of the individuals compoſing which ſhould be alike, it would be neceſſary that they ſhould all be under the influence of the ſame climate, be ſimilarly addicted to the ſame occupations, and follow the ſame worſhip. It would be requiſite, if they were a poliſhed people, that they ſhould live under a firm government, and that the part which they might ſhare in it, ſhould give to their ideas, their paſſions, and even to the external expreſſion of their frame, a certain uniform and conſtant ſtamp. The union of all theſe qualities alone could juſtify the picturing a nation by an individual indiſcriminately ſelected. A ſingle variation in either of the points noticed will be ſufficient to vary the phyſical and moral features ad infinitum. Hence it were an eaſy matter to pourtray the character of the ancient Scythians, of paſtoral nations, of the ſavages of Canada, and of all barbarous races, whoſe religion is ſimple, who have but few laws, and maintain but little communication with any other people.

Hence it is that the Greeks and Romans, in the happy periods of their republics, almoſt entirely devoted to the love of their country, liberty and fame; inhabiting a confined ſpace, where the influence of climate was every where nearly alike; and each taking a part more or leſs active in the government; might be generally deſcribed by the ſame lineaments.

Hence that among modern nations, the Engliſh, Swiſs and Dutch, would be nearer this uniformity; the firſt from that univerſal inquietude which fixes their attention upon government, whoſe operations are ſubmitted to their inſpection, from their inſular ſituation which fits them generally for navigation and the ſpeculations of maritime commerce; and from that national pride which is in ſome meaſure juſtified by their dominion of the ſea, but feebly conteſted anywhere. The Swiſs from their geographical poſition, which until lately rendered them paſſive ſpectators of the troubles of Europe. The Dutch, who, in ſpite of the ſlight differences which before theſe late commotions exiſted between the modes of government in uſe throughout their ſeven provinces, had all of them a point of union in their attachment to liberty, in the nature of their territory, in their ſituation on the banks of ſeas and canals, whence muſt neceſſarily reſult an uniformity of occupations, taſte, and even of paſſions.

But who can flatter himſelf with the idea of giving a good portrait of the whole German, Italian, and French nations? What a difference between the climates, productions, employments, laws and language of one province and thoſe of another! Who would apply to an inhabitant of Weſtphalia the deſcription of a Saxon or an Auſtrian; that of a Neapolitan to a Venetian; or that of a Fleming to an inhabitant of Languedoc?

The Spaniards are in the ſame ſituation as theſe three nations. There are in the inhabitants of their chief provinces ſuch ſtriking differences of climate, manner, language, habits, character, and even exterior form, that the portrait of a Galician would more reſemble a native of Auvergne than a Catalonian, and that of an Andaluſian a Gaſcon more than a Caſtilian. If the Spaniards ever had characteriſtic marks, applicable to all the inhabitants of their peninſula, it was when the Arabians, by eſtabliſhing themſelves in the nation, had ſtamped it with a particular impreſſion, and notwithſtanding the different cauſes which kept them ſeparate from it, communicated a part of their manners, their noble, grand, and even ſometimes coloſſal ideas; their taſte for the arts and ſciences, and every thing of which traces are ſtill found in the provinces where they moſtly reſided. Then it was that the high idea the Spaniards entertained of their nation, and which was juſtified by circumſtances, appeared in their perſons; and gave them all a reſemblance to the deſcription of the preſent day, when repreſented grave, auſtere, generous, and breathing nothing but war and adventures. It was, in fine, when in their general aſſemblies, which they called *Cortes*, all took a part, more or leſs active, in the government; directing or watching its operations, and feeling more ſtrongly than at preſent, that patriotiſm which acts ſo powerfully upon the opinions, affections, and manners, of thoſe whom it animates.

But theſe three cauſes of uniformity in national character have almoſt entirely diſappeared, and left the Spaniards more ſubject to the influence of climate, and the laws and productions of their different provinces; ſo that to deſcribe them in their preſent ſtate, they ſhould be divided into Caſtilians, Catalonians, Arragoneſe, Navarrians, Andaluſians, and Aſturians, and to each of theſe people ſhould be aſſigned a particular portrait; a difficult and diſagreeable taſk, which could never be completed without almoſt continually placing the exception by the ſide of the rule; in which it would be ſcarcely

poſſible to be exact without deſcending to minuteneſs, to be juſt without being ſevere, or an eulogiſt without appearing to flatter.

However, this revolution has not been ſo complete as not to leave many features, by which the whole Spaniſh nation may ſtill be known. A part of its manners have ſurvived the event by which they were changed. The influence of its climate has been modified, but not deſtroyed. In many reſpects the provinces have the ſame form of government. The court of an abſolute monarch is ſtill the center of all their good wiſhes and affections. All the modern Spaniards profeſs the ſame religion. In literature they preſerve ſtill the ſame taſte, and copy the ſame models. In ſome inſtances they have retained a reſemblance to their anceſtors, and this is what I ſhall endeavour to point out.

At that period when Spain diſcovered and conquered the New World, when not contented with reigning over a great part of Europe, ſhe agitated and convulſed the other by her intrigues or military enterprizes; the Spaniards were intoxicated with that national pride which appeared in the exterior of their perſons, in their geſtures, language and writings. As there was then ſome reaſon for this, it gave them an air of grandeur which was pardoned by thoſe whom it failed to inſpire with reſpect. But by a concurrence of unfortunate circumſtances this ſplendour is no more, and the aſſuming manners which it palliated have ſurvived its eclipſe. The Spaniard of the ſixteenth century has diſappeared, but his maſk remains. Hence that exterior of high ſpirit and gravity by which he is at preſent diſtinguiſhed, and which have frequently recalled to my recollection two lines of one of our poets on the ſubject of original ſin, notwithſtanding the conſequences of which the ſublime ſtation man was intended to fill is ſtill eaſy to be known.

C'eſt du haut de ſon trône un roi précipité,
Qui garde ſur ſon front un trait de majeſté *.

The modern Spaniard ſtill preſerves in his air and geſture the marks of his ancient greatneſs. Whether he ſpeaks or writes, his expreſſions have an exaggerated turn which comes near to bombaſt. He has an exalted idea of his nation and of himſelf, and expreſſes it without the leaſt diſguiſe of art. His vanity does not ſhew itſelf off with thoſe pleaſant exaggerations which provoke laughter rather than anger, and which characteriſe the inhabitants of one of the provinces of France. When he boaſts it is gravely, with all the pomp of language. In a word; the Spaniard *is a Gaſcon who has put on the buſkin.*

I am nevertheleſs much diſpoſed to believe that the genius of the language may alſo be one reaſon for this pompous ſtyle. The Spaniards have not only adopted many words and expreſſions from the Arabic, but their language is impregnated, as it were, with the oriental ſpirit which the Arabians naturalized in Spain. This is found in all the productions of Spaniſh imagination, in works of piety, in comedies and novels. It is, perhaps, one of the cauſes of the ſlow progreſs of ſound philoſophy, ſince by every thing being carried beyond the truth, by the accumulation of images round the moſt ſimple ideas, and by favouring whatever borders upon the wonderful, the ſanctuary of truth is ſurrounded with illuſion and rendered as it were inacceſſible.

But the loftineſs of the Spaniard, which would be noble were it more moderate, and that gravity which always awes, and ſometimes repels, are compenſated by very eſtimable qualities, or are rather the ſource of thoſe qualities. Individual as well as national pride, elevates the mind and guards it againſt meanneſs; and ſuch is the effect of Spaniſh haughtineſs.

* He is a King precipitated from his throne, who ſtill preſerves on his brow ſome features of majeſty.

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In Spain there are vices and crimes as well as in other countries; but in general they bear this national characteriſtic. It is obſervable in the moſt obſcure claſſes, in dungeons, and even under rags and miſery. It balances, in a certain degree, the genius of the language, which is naturally diffuſe, and in which the ear ſeems to be gratified by an accumulation of ſonorous words, frequently miſtaking multiplied expreſſions for a ſuperabundance of ideas. Loftineſs is commonly laconic; it diſdains detail and loves enigmatical expreſſions, becauſe they are conciſe; leaving room for thought, and ſometimes for conjecture. Hence is it that the ſame Spaniards who, when their imagination is in the leaſt warmed, diſplay all the luxury of their language, are pithy when their mind is calm. Of this I might give a hundred examples, but I ſhall mention only two. I had occaſion to ſpeak to a Spaniard of the loweſt claſs, and found him with a ſerious countenance careſſing a little child. I aſked him if he were the father? A Frenchman of the ſame rank would have modeſtly anſwered, Yes, Sir; or, at leaſt, I believe ſo; adding much more on the ſubject than I might wiſh to hear. The Caſtilian, without diſturbing himſelf, or even receiving my queſtion with a ſmile, anſwered me coldly: "*he was born in my houſe*," and immediately turned the diſcourſe to ſome other ſubject. Another example of their Spartan ſhortneſs was afforded me by a French traveller. He met on his entrance into Caſtile with a ſhepherd, who was driving a flock of ſheep. Deſirous of learning what gave its exquiſite quality to the Spaniſh wool, Frenchman-like, he loaded him with queſtions, and aſked in a breath — If his flock belonged to that diſtrict? what they lived upon? if he was travelling? where he came from? whither he was going? what period of the year he began his journey? and when he returned? The ſhepherd, liſtening patiently to his volume of queſtions, anſwered him coolly: *aqui nacen; aqui pacen; aqui mueren*;* and continued on his way.

This gravity, which is proverbial, is yet very wide of what it is generally ſuppoſed to be; in fact it excludes in the Spaniards what we call affability. They do not anticipate, but wait for you. But this auſtere covering frequently conceals a good and benevolent mind, which the leaſt examination may diſtinguiſh. Strangers to the unmeaning hypocriſy of French politeneſs, the Spaniards are ſparing of profeſſions. Their ſmile of benevolence is not merely a courteſy, for their heart in common opens with their features. How often have I been repulſed by the exterior of a Spaniard, remaining a long time without being able to conquer my repugnance, which was all that was neceſſary, to find in him, not an affected, but a real complaiſance; not that obliging manner which promiſes, but that which grants! The Spaniards are, perhaps, in want of that urbanity, which is the reſult of what we call a refined education, but which too frequently ſerves as a covering to falſehood and diſdain. They ſupply this by that unaffected frankneſs and good nature, which announces and inſpires confidence.

The great among them have no *dignity*, if by that word be meant a circumſpection that fears to provoke familiarity, and which looks leſs for affection than reſpect; they make no mortifying diſtinction of claſſes, nor diſdain to form connections among thoſe beneath them in rank. They have no longer among them a Duke of Alba, a Don Louis de Haro, and a Peneranda, whoſe characters, diſplayed in the face of Europe, have undoubtedly contributed to propagate the idea ſtill entertained of the imperious haughtineſs of the Spaniſh nobility of the firſt rank, at leaſt it is no longer of the deſcription it was then. If ſome have ſtill preſerved the traces of it, in them it is leſs haughtineſs than coolneſs, timidity, and embarraſſment.

* "Here they were born, here they feed, and here they die." After the Spaniſh faſhion it is a metrical reply of ſome beauty.

Not but there are grandees among them, and others, who, without poſſeſſing that rank, deem themſelves deſcended from an equally illuſtrious origin; who entertain a loſty opinion of their race, and manifeſt it upon certain occaſions, particularly when in preſence of thoſe who pretend to place themſelves on a footing with them. The pride of *tutoiement*, of which we have ſpoken before, is an evident proof of this, which conſtantly exiſts; but this loftineſs diſappears among them when addreſſed by their inferiors who ſolicit favours: and is entirely loſt at court. Here their dignity frequently ſtoops, even to meanneſs. Deſpotiſm, notwithſtanding the cloathing of benignity in which for this century paſt it has been uniformly clad, ſeems to overpower it by its weight and make it almoſt contemptible. Stationed in its preſence, the nobles meet with nothing but tireſomeneſs, and abaſement, and have not ſpirit enough to ſeek by a removal for amuſement and independence. Much more truly may it be ſaid of them as was formerly of the nobles of France — "They might, if they would, be little ſovereigns on their own eſtates, they prefer being lacqueys at court." Exceptions to this rule are very rare and are conſequently noticed. There are however ſome who prove that they feel, if not the dignity of their being, at leaſt that of their race. I have noticed ſome who of their own accord baniſh themſelves for ſome time from court, and prefer the appearance of being in diſgrace to the ſhame of a mean condeſcenſion; and others bold enough to make uſe of ſomewhat ſharp repartees. One of theſe who was moſt intimate with the reigning ſovereign, when he was but Prince of Aſturias, is remarkably ſhort of ſtature. The prince was continually joking with him about it. One day, tired of having himſelf continually called little he replied with great coolneſs, and was heard without anger — *Ségnor, en mi caſa me llaman grande.* Sire, at home they call me great.

The wives of the grandees ſeem to have preſerved more of the ſtiffneſs that is attributed to the nobility of Spain than any others. It is impoſſible for mortals to be more cold, more grave, or more inſipid, than the greater part of theſe noble ladies; there are, however, five or ſix who do not participate in theſe attributes; I ſhall not mention their names, as I ſhould be unwilling to ſow diſſention among thoſe beauties, whoſe charms are the moſt pleaſing ornament of the court.

In other reſpects, this gravity ſerves but as a veil in perſons of every claſs to cheerfulneſs, which needs but to be excited. To prove this, I ſhall not have recourſe to the Spaniſh theatres, where buffooneries are ſo well received; this would rather be an argument againſt my aſſertion, becauſe it has been remarked, that theatrical repreſentations, in nations famous for their gaiety, are more ſerious than thoſe of a different complexion; as if the mind were moſt delighted with thoſe emotions moſt oppoſite to its habitual ſtate.

But in order to judge, whether or not the Spaniards have the vivacity I attribute to them, take them in their colonies, where they are at their eaſe; their repaſts, even before the vapours of the food and wine have acted on the brain; their converſations then abound in ſprightlineſs, pleaſantry, and equivoque; all either the legitimate or illegitimate offſpring of vivacity; and afterwards determine whether they be not more open, and humour better ſupported than in French ſocieties. Undoubtedly he will ſay, that this vivacity is too noiſy, and not courteous. But foul befal that delicacy which encourages tireſome inſipidity. Let this cheerfulneſs, however, be or not be condemned by the caprice of faſhion, it does not the leſs exiſt becauſe our prejudices are different.

Similar obſervations may be made on other defects with which the Spaniards are reproached. If I have not quite abſolved them from the charge of idleneſs, I aſſert again that it is the conſequence of tranſient circumſtances which will diſappear with them. In fact,

fact, when we witneſs the activity which appears upon the coaſt of Catalonia, throughout the whole kingdom of Valencia, in the mountains of Biſcay, and every where in ſhort, where induſtry is encouraged, and commodities have an eaſy and certain ſale; when, on the other hand, we obſerve the laborious life of the muleteers and caleſſieros, who courageouſly lead their mules and drive their carriages through the moſt dangerous roads; the huſbandmen, who, in the plains of La Mancha and Andaluſia, become hardy by their labours in the field, and which labour, the nature of the ſoil, the diſtance of their dwelling, and the heat of the moſt burning climate in Europe, render far more painful than in other countries; when we conſider the number of Galicians and Aſturians who, like our Auvergnacs and Limouſins, ſeek far off from home their ſlow and painful means of ſubſiſtence; in ſhort, when we perceive that the idleneſs with which the Spaniards are reproached, is principally limited to the boundaries of the two Caſtiles, that is, to thoſe parts of Spain which are the moſt unprovided with roads, canals, and navigable rivers, and moſt diſtant from the ſea; it is but juſt to conclude, that this vice is not an indelible ſtain, nor a general characteriſtic of the Spaniſh nation.

They have another defect which borders cloſely upon idleneſs; this is ſlowneſs; and from this it would be more difficult to exculpate the Spaniards. It muſt, candidly ſpeaking, be allowed, that knowledge penetrates but very gradually in Spain. In political meaſures, war, and all the operations of the government, nay, even in the common occurrences of life, when other nations act, they ſtill deliberate. Miſtruſtful and circumſpect, they fail in as many affairs from ſlowneſs, as others from precipitation. This is the more extraordinary, as their lively imagination ſeems of a nature to be irritated by delay. But in nations, as in individuals, there is no ſingle quality which is not frequently modified by a contrary one, and in the ſtruggle, the triumph is ever on the ſide to which the mind is moſt forcibly diſpoſed by the circumſtance of the moment. Thus the Spaniard, naturally cool and deliberate when nothing extraordinary actuates him, is inflamed to enthuſiaſm, if his pride, reſentment, or any of the paſſions which compoſe his character, be awakened, whether by inſult or oppoſition. And his nation, apparently the moſt grave, phlegmatic and ſlow in Europe, ſometimes becomes one of the moſt violent when incidents deſtroy its habitual calm and leave it to the empire of the imagination. The moſt dangerous animals are not thoſe which are moſt prone to agitation. The aſpect of the lion is grave as his pace; his motions are not without an object; his roarings not in vain. Let his quiet be unmoleſted, he cheriſhes ſilence and peace; but let him be provoked, you ſee his mane erect; his eye balls glow with fire; you hear his hollow roar; and acknowlege the lord of the foreſt.

I do not mean by this parody to inſinuate that Spain is the lion of Europe, which, however, was the caſe in former times. I ſimply mean to maintain, that in her is evinced more plainly than in any other nation, that qualities apparently irreconcileable may be united in the ſame character: ſuch as violence and tardineſs, cool gravity and extreme iraſcibility. This mixture is viſible in two of his principal affections, his courage and devotion. With an appearance of equal calmneſs in each, the one in the character of the Spaniard ſwells into fury, the other into fanaticiſm. Not in me will thoſe exceſſes ſo frequently ridiculous, and at times atrocious, into which he is lead by his wrong conceived attachment to religion, not in me will they meet an advocate; nor at the ſame time will I in any way attempt to leſſen the pretenſions to eſteem which are the natural right of his undiſputed courage.

On the contrary I will allow that, with the exception of a few Spaniards of the preſent day, the nation is religiouſly credulous and attached to the mummery of the church, in one word that it is juſtly accuſed of ſuperſtition. It may even be ſaid, and the obſervation

ſervation be taken in its full ſenſe, that this disfigured baſtard ſiſter of religion has continued almoſt uninterruptedly either in poſſeſſion of the throne, or hovering round the court. She reigned conſtantly in conjunction with the weak and ſickly Charles II. She was a copartner with Philip V., a good and virtuous monarch but deſtitute of energy, pious and ſincere but ever in the extreme. And notwithſtanding the taſte for ſplendor and pleaſure, which characterized Ferdinand VI. ſhe ſtill was his colleague. Leſs rigid towards theſe three ſovereigns and their ſucceſſor than to the greater part of their ſubjects, ſhe yet ſheltered them from all pravity of manners; and ſo much ſo that the rare phenomenon was preſented to the world of a ſucceſſion of ſeveral kings who never ſought for enjoyment in the arms of a miſtreſs.

As to Charles III., ſimple in his manners, exemplarily regular in his private life, ſcrupulouſly juſt even in matters of policy, to the day of his death, as well in words as in deeds, he always paid his tribute to ſuperſtition.

It particularly belonged to the founder of the order of *St. Januarius*, whoſe motto is *in ſanguine fœdus*, to place implicit credence in the liquefaction of the blood of that Neapolitan ſaint. An occaſion once offered of his manifeſting the blind belief which he had of this prodigy. I have heard him relate that while he reigned at Naples the miracle was all at once at a ſtand. The holy phial was ſhook in vain. Long was the cauſe of it ſought for, at laſt it was found. It muſt be obſerved that the phial is kept within the ſhrine of the ſaint, but on one ſide, and ſeparated by a partition from his tomb. A tradition exiſted at Naples that in order to cauſe the blood to preſerve its liquid ſtate, not the ſmalleſt communication muſt exiſt between the body of St. Januarius and his miraculous blood. Now upon examining the tomb minutely, a chink was found in the partition which ſeparated the tomb from the phial. The damaged diviſion was hereupon quickly repaired, and immediately the blood became as liquid as before— Let who will explain this wonder. One cannot however refuſe it credit, for, as Lafontaine obſerves "Kings never tell a lie," and of Charles III. perhaps more than any other might this be truly ſaid.

This prince took delight in relating, perhaps a ſtill more ſtrange event. The reader may poſſibly recollect the danger which he ran in 1744, when an Auſtrian army, commanded by Lobkowitz, proceeded to Naples, with a view of dethroning Don Carlos, (himſelf,) and the good fortune he had of eſcaping at the battle of Velletri. The ſucceſs of the day, according to the prince, was owing to a battery of cannon, fortunately placed at the end of a ſtreet, through which the Auſtrians were to proceed to ſeize him. The battery played upon them ſo efficaciouſly, that they were obliged to retire, and take another road, loſing not only their prey, but the victory as well. At the cloſe of the battle, His Majeſty made enquiry, what faithful and well-informed ſubject he had to thank for the diſpoſition of theſe protecting cannon. He was ſought for with avidity throughout the army, and a great reward was promiſed him. Nobody appeared. Hence Don Carlos, and thoſe who were with him, doubted not an inſtant, that the Almighty himſelf had placed the battery there; and this belief Charles III. carried with him to the tomb.

His faith, in the immaculate conception, was conſecrated by an order which he inſtituted, to which he gave that title. He left his virtues to his ſucceſſor for an inheritance, without forgetting among the number, that firſt of theological virtues, which ſeems to be one of the neceſſary attributes of thoſe monarchs, called for diſtinction's ſake *moſt catholic*.

It will readily be conceived, that Kings ſo pious as theſe muſt neceſſarily be ſurrounded by ſervants, and have at the ſame time a number of ſubjects, animated with

the ſame zeal for religion, and whatever relates thereto; and ſo far juſtice muſt be done the Spaniſh nobility, the miniſters, and generals, to ſay that, in this reſpect, for by much the greater part, they ſtrive to conform with their auguſt model. There are few among the great but what poſſeſs relics among their jewels; or who ever fail to attend at mattins to chaunt their anthem to the virgin.

Of Galvez, (whom no one can charge with poſſeſſing a weak mind,) I have heard it related, that he was a witneſs to the following fact. Being once at Seville, he had the *felicity* to behold the body of St. Ferdinand. The air of ſerenity which was ſpread over his features ſo forcibly inſpired devotion, that none could withſtand its influence. An Engliſhman, who was among the ſpectators, and who previouſly had been accuſtomed to ſpeak in the lighteſt manner of the ceremonials of the Roman catholic faith, was ſo much affected by the venerable aſpect of the ſaint, that he burſt into tears in the midſt of the church, immediately became converted, and was afterwards among the moſt devout.—The ſame miniſter once alſo related before me, that when he was at Mexico, he ſaw the corpſe of the firſt biſhop of Guadalaxara, who died *in ſanctitutis odore*. His body was preſerved from corruption; dreſt in his epiſcopal robes, he ſeemed to be wrapt in peaceful ſlumber. At that time his beatification was in courſe of diſcuſſion; and certainly "there was," ſaid he, "ample reaſon for it. His whole life had been a tiſſue of miracles. Do but judge. Before he was called to the biſhoprick, he was councillor of audience at Guadalaxara. A criminal proceſs was inſtituted before this tribunal. The accuſed was judged worthy of death, and by every voice, even by that of the future biſhop, the culprit was ſentenced to die. But when the condemnation was preſented to the judges, the holy man pertinaciouſly refuſed to ſign it. It was inſiſted that he ſhould. At length, urged ſo ſtrongly, he obſerved,—"biſhops may not ſign a ſentence of death." "But you are not a biſhop," they replied—"I feel that I am," ſaid he.—At firſt it was thought his brain was deranged. They were undeceived when ſome months afterwards they learned, that on the very day of his refuſing his ſignature, the Pope had made him Biſhop of Guadalaxara."

Are more general evidences neceſſary of the propenſity of the Spaniards to ſuperſtitious credulity? It may be recollected that in 1780 the Spaniſh navy experienced a violent check in the roads of Cadiz. One of their ſquadrons was ſurprized by Rodney, and defeated in ſpite of the bravery of Langara. Four of his ſhips were taken by the Engliſh, called the *Phœnix*, the *Diligent*, the *Princeſs*, and the *San Domingo*. All thoſe which eſcaped bore the names of different ſaints. The people did not fail to take notice of this, and as by a ſingular accident the San Domingo blew up at the inſtant of its being moored, they ſaid that its patron choſe rather to ſee her periſh than paſs into the hands of infidels.

I however wiſh it to be underſtood that I by no means imagine theſe remarks were made by the officers of this ſquadron. They do not all of them reſemble Admiral Barcelo, who from a ſimple lighterman attained the higheſt ſtations in the navy, and who was uſed to ſay that for his part bravery was no virtue in him becauſe he was invulnerable; and ſhewing his ſcapulary would obſerve ſeriouſly, that he had ſeen many a bullet while coming direct towards him turn on one ſide as it approached this talisman. There are it cannot be denied among all the different claſſes of the Spaniſh nation, people who are credulous in this way to the moſt ridiculous exceſs. But what nation ancient or modern is there with whom the ſame reproach will not lay? The Greeks? The Romans? Their hiſtorians, Plutarch, Livy, Tacitus, that eminent philoſopher Socrates, have they not all of them paid this tribute to human weakneſs? And was the mind of Paſcal, among the moſt maſculine that can be cited, entirely free from it?

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As for Racine, has he not given credit to, and related ſome of the miracles which happened at Port Royal? It is true, the Spaniards at the preſent epoch are more ſuperſtitious than the reſt of Europe; although among them there are many, who, in conſequence of their different education by travelling, and by making uſe of their reaſon, are far from ſharing in the obloquy; nay, even among the clergy I have met with numbers, who poſſeſs very clear and juſt ideas of true religion.

But in thoſe claſſes in which education is neglected, (and ſuch are numerous,) the members of which have little external communication, and few means of acquiring real knowledge, ſuperſtition and fanaticiſm are carried to a far greater height than even in Flanders or Bavaria; for religion every where taking its dye from the character of individuals, muſt neceſſarily have ardent followers, in a nation remarkable for a lively imagination, and violent paſſions.

This mixture of ſtrength and weakneſs produces even at preſent effects diſtreſſingly whimſical. At Madrid there is a church, in which, during paſſion week, the moſt fervent among the orthodox aſſemble in an obſcure cell. On their entrance, long cords are diſtributed to each. They ſtrip themſelves naked to the haunches; and at a concerted ſignal they flog each other with ſufficient violence to draw forth ſtreams of blood. The ſilence obſerved during this barbarous ceremony is only interrupted by ſighs of repentance, mingled with expreſſions of pain. The greater part thus make a truce with their licentious living. Unhappy wretches! they have none for witneſs to their voluntary martyrdom, but God and their conſcience, and the next day they lye both to one and the other. They have reſolution ſufficient to puniſh themſelves, they have not enough to reform their life; ſo that all this cruel ſuperſtition is labor ſpent in vain.

The capital, in courſe, does not enjoy this privilege excluſively. In ſome provinces the ſun ſhines on theſe ſcenes. A man of great credibility aſſures me, that he was once preſent in a town of Eſtremadura, at the following event. He had acquaintance in this place with a young lady of the mildeſt manners, of an amiable and lively diſpoſition, a perſon adorned with all the charms of her age and her ſex. He had gone to ſee her on a good Friday, and found her with a ſmiling countenance, dreſſed entirely in white. He aſked her the cauſe of this extraordinary apparel, on a day ſet apart for mourning and peniſitence. You ſhall ſee, was her reply. It was at the very inſtant that the diſciplinarians were to paſs by the quarter where he ſtood. She ſeemed to wait for them with impatience; at length they drew nigh. She advances to the window which was on the ground floor, and open. The penitents halt and begin their exerciſe. In an inſtant, her ſnowy robe is covered with the blood that ſpouts from their mangled ſhoulders. She ſeemed to be delighted at the ſight of her robe, beſprinkled with this roſy ſhower, and the motive of her white dreſs explained itſelf at once. I will ſuppoſe, for an inſtant, that gallantry had its part in this mimickry of penitence; that the lover of the young lady was among the number of the flagelliſts. Yet, does the ſcene therefore appear leſs whimſically barbarous?

Theſe are ſome ſamples of Spaniſh devotion; but it is not in every part of the kingdom, that it is carried to ſuch an extreme of folly. The enlightened, among the Spaniards, whoſenumber daily encreaſes, are hurt at ſeeing it ſo deeply rooted. Within theſe laſt years, under the reign of the pious Charles III. ſome ſalutary reforms have been attempted with ſucceſs.

Even in Madrid, a great number of thoſe proceſſions have been ſurpreſſed, called *roſarios*, which almoſt at all hours of the day were paſſing through the ſtreets to ſome church or other, the members of them chaunting unintelligible canticles; ceremonies certainly uſeleſs in the eyes of true religion, and which were without other conſequence

than that of wearying paſſengers, drawing journeymen from their occupation, and mothers from their domeſtic affairs.

The government reſiſts all attempts at encroachment on the part of the Holy See.

The property of the clergy is no longer looked upon as inviolable.

The miſconduct of the monks and inferior clergy meets with condemnation, and ſevere meaſures are adopted for repreſſing it.

It begins to be felt, that a diminution of the prodigious number of convents is neceſſary to the regeneration of Spain.

Such are the ſteps taken by reaſon in Spain for purifying religion.

On the oppoſite ſide, (for I ſtand pledged to declare all,) the moſt inviolable reſpect is ſhewn to the meaneſt miniſters of the goſpel. They are met with in every houſe, and looked upon as an Ægis, under whoſe ſhelter men are protected from the anger of both man and God. When I paſſed through Valencia in 1793, at which time a Frenchman was held in deteſtation, ſome ladies of that nation owed their ſafety to the interpoſition of the prieſts, who haſtened to their relief.

People ſtand by to let them paſs, and give them the wall; and oftentimes on meeting them, perſons of the higheſt rank reſpectfully kiſs their hands.

If a prieſt be met with on foot, who ſhould be carrying the viaticum, you are obliged to get out of your carriage in order to let him take your place, accompanying him on foot to the houſe of the ſick perſon; there he is to be waited for; and when his office is finiſhed, he is to be eſcorted back to the church whence he came. It is only after this that you obtain repoſſeſſion of your carriage.

If the holy ſacrament be carried any where, a bell is rung to announce it. All buſineſs then, all converſation is ſuſpended; and every one falls on his knees till it paſs by. Hence ariſes many a burleſque ſcene. How often have I ſeen the play interrupted all at once by the ſound of the holy bell! Spectators, actors, however dreſt, Moors, Jews, Angels, even devils, all without exception, turn towards the entrance from the ſtreet, fall on one knee, and remain in that poſture as long as the ſound continues to be heard.

At the doors of the churches, this ſingular notice is every day ſeen affixed. *Hoy ſe ſoca animas. This day ſouls are taken out of purgatory.*

Not a coachman, who mounts his box, but makes firſt the ſign of the croſs, and mutters ſome prayers, which are inſtantly ſucceeded by ſome of thoſe energetic phraſes with which he animates his courſers. Frequently, while thus employed without, his maſter within the coach is ſinging an anthem to the virgin, although very likely on his way to ſome profane amuſement; ſome wits have even informed me, that if on mounting the ſtaircaſe they ſhould chance to meet a rival friar by the way, they entreat of him abſolution before hand for the ſins they are about to commit.

Reſpect for the cloth is carried ſo far as to cauſe the people to attribute to it a preſervative virtue, even after death: in conſequence, nothing is more common than to ſee the dead buried in the dreſs of a monk, and be thus carried to their laſt home, with their face uncovered, as is the practice in moſt parts of Spain. The franciſcan habit is the favorite on this occaſion; and the convents belonging to this order have a warehouſe, and tailors, eſpecially ſet apart, for ſupplying this poſthumous wardrobe. So great a demand is there for theſe dreſſes, that a ſtranger, who had been ſome months at Madrid without being informed of this cuſtom, and obſerving none but apparent Franciſcans carried to the tomb, expreſſed his aſtoniſhment to me at the prodigious number of that order which the city muſt contain, and ſeriouſly aſked, if I did not conceive,

from

from the immenſe number of deaths which occurred among them, that their order, however numerous it might be, muſt ſoon become extinct.

The dreſs of the convent accompanies the Spaniard to the tomb, it is alſo nearly his earlieſt clothing. It is by no means unuſual to meet with little monks of four or five years of age, playing the monkey tricks ſo common to that age in the ſtreets. Nor is it uncommon for the parents, whoſe ſtrange inclination is manifeſted by the dreſs they give them, to turn up the tail of the robe, in order to adminiſter paternal correction to theſe innocent creatures, who are perhaps the only ones of the cloth that are actually ſubmitted to diſcipline.

Certificates of having regularly attended confeſſion, and obſerved the precepts of the church during Eaſter, are exacted from all the faithful, whether ſubjects of the realm, or foreigners; an idle meaſure in itſelf, ſince nothing is more eaſy than to obtain them without fulfilling the ceremonial which they teſtify; for they are ſold the ſame as any other article of merchandize, and women of the town, (who here have numerous viſitors,) almoſt always have a quantity of thoſe *certificates for the bearer* to ſell, which they obtain at an eaſy expence, of what nature, and who the donors, may readily be ſurmiſed.

One of the moſt common geſtures among the Spaniards of every diſtinction, is the ſign of the croſs. It particularly ſerves as a note of admiration accompanied by the expreſſion of the word *Jeſus*. At every flaſh of lightening they repeat the ſymbol of ſalvation, and even if they gape, they expreſs it with their thumb upon the mouth; in ſhort their every motion is in meaſure ſtamped with the mummery of devotion.

If a perſon enters a houſe, unleſs he would paſs for a heretic, his firſt exclamation muſt be: *ave Maria puriſſima;* to which there is always the reſponſe of *ſin piccado concebida.*

Every year there is paſted on the church-gates a catalogue of ſuch books, national and foreign, as the Holy Office has thought fit to proſcribe, under pain of excommunication.

Laſtly, that tribunal juſtly enough appreciated by the wiſer part of the nation, is yet in eſteem with the greater part. It yet follows the ſame formidable ceremonial, it yet has its ſpies even among the higher ranks, and ſometimes its victims, &c. &c.

Let the truth be ſpoken out however, at the riſk of wounding that ſelf-love ſo eaſily offended in any nation, and which ſo generally is ſatisfied with nothing ſhort of eulogy. The man does not calumniate who ſpeaking of Spain deſcribes it, as in many reſpects the country of mummery, fanaticiſm and ſuperſtition.

CHAP. XI.—*Continuation of the portrait of the Spaniards.—Their bravery.—Remains of barbariſm.—Their patience and ſobriety.—Portraiture of their women.—Their diſſolute manners, and the cauſe thereof.*

We have witneſſed the influence of the character and education of the Spaniards of the preſent day, on their religious principles, let us now examine the effect they have on their courage.

The cauſes of its former active diſplay have, for many years, paſſed away. The Moors are no longer their neighbours, whoſe proximity and difference of faith, exciting continually mutual jealouſy and hatred, gave occaſion for frequent wars, and numerous opportunities of nouriſhing and diſplaying the national proweſs. If the Spaniard appears no longer liable to the ſame degree of fermentation, if he ſeem aſleep,

he yet may be awakened; the leaſt ſignal in fact, recalls him to himſelf. His fits of *holy* rage, indeed, are much more rare. The period, at which the name of infidel alone, was enough to tranſport him to fury; that period, the age of Pizarro and Almagro, is happily paſt. Religious intolerance, if it be not entirely corrected in Spain, is at leaſt accompanied more by ridiculous than atrocious forms; and when they fight with Muſſelmen, they combat the enemies of their country, rather than thoſe of religion.

They even begin to think that religion may allow of policy to treat as uſeful neighbours, thoſe whom they have been accuſtomed to look upon as irreconcileable enemies. In Spain, as well as in other nations, the progreſs of knowledge and philoſophy, though it may have been ſlow, has ſenſibly ſoftened the manners. The traces of ancient barbarity diſappear in gradual ſucceſſion.

Aſſaſſination was formerly common in Spain. Every man of reſpectability had his aſſaſſins at command; which were hired in the kingdom of Valencia, as it is pretended witneſſes were not long ago in ſome of the French provinces. This dreadful cuſtom was in ſome meaſure the conſequence of the kind of weapon then in uſe. This was a ſpecies of triangular poniard which, concealed under the cloak, was drawn forth for vengeance in the moment of reſentment. A ſtroke from it was much more dangerous than one from a ſword, which is uſed openly, and requires ſome dexterity. This dreadful poniard was more to be feared than the common one known by the name of *rejon*. The uſe of theſe perfidious weapons is not yet entirely aboliſhed, and furniſhes a juſt ground for the charges which foreigners bring againſt the Spaniards.

It is ſeldom that the manners of a people are corrected by violent and precipitate means. In the reign of Charles III. the miniſter, Squillaci, made the ſad experiment, now about ſeven-and-thirty years ago. Dreſt in a long cloak, and a ſlouched hat pulled over the face, a man with difficulty would recognize his beſt friend; a dreſs like this in courſe favoured exceſſes, and particularly ſuch as endangered the ſafety of the citizen. In order to aboliſh the uſe of them in Madrid, he had recourſe to coercive means, and even open force. Satellites poſted at the corners of ſtreets, provided with ſhears, publicly clipped ſuch cloaks as exceeded the length preſcribed. He fancied he ſhould find the Caſtilians as ſubmiſſive as the Ruſſians in the time of Peter the Great; he, a ſtranger! miniſter of a monarch who had paſſed the greater part of his life out of Spain! what was the conſequence? The people mutinied; the King was frightened, and the miniſter was ſacrificed. The manner of dreſs ſo ſuddenly attacked, was in part continued after his diſgrace; but milder and ſlower meaſures, the example of the court, and thoſe about it, added to the activity of a vigilant police, have conſiderably contributed to correct the evil. The ſpecies of maſk, under the name of a hat, which encourages inſolence by inſuring impunity, is totally laid aſide; and the cloak, very convenient for thoſe who know how to wear it, now favours nothing but idleneſs.

The uſe of the poniard ſtill exiſts in ſome parts of Spain, eſpecially in the ſouthern provinces, but it is wholly confined to the loweſt rank. Some bravoes make it a bugbear to the weak, and with the violent and paſſionate it is the inſtrument of immediate vengeance. The clergy have made it a part of their miſſion of peace and charity to diſarm their pariſhioners. The archbiſhop of Granada, in particular, has with this view ſucceſsfully employed the arguments of the pulpit. But theſe means have not had every where the ſame effect. The kingdom of Valencia, that country ſo highly favoured by heaven, where the beauty of the climate and the riches of nature ſhould excite none but the milder paſſions, is ſullied with murder. One of the prerogatives of the crown conſiſts in pardoning annually one criminal condemned to death, provided his crime have a ſhadow of excuſe. It has been remarked lately, that for ſeven ſucceſſive years

there has not been one criminal who could be recommended to mercy in the fatal liſt preſented to the King, ſo atrociouſly premeditated had every crime appeared.

Poniards and aſſaſſinations are alſo ſtill common in Andaluſia, where the powerful influence of climate, when not counter balanced by moral agency, appears manifeſt. During the ſummer, a certain eaſterly wind (*Elrunto de Medina*) cauſes in that province a kind of phrenzy, which renders theſe exceſſes more common at that ſeaſon than in any other of the year.

But let Spain reſume the appearance which nature preſcribes; let roads and canals croſs theſe diſtricts which have hitherto been almoſt inacceſſible; let a more eaſy communication render the vigilance of the agents of government more active and certain; let the progreſs of agriculture, induſtry, and commerce give employment to miſchievous idleneſs; in a word, let the preſent plan of government continue to be executed, and it will ſoon appear, in this reſpect as in others, that the influence of climate will yield to ſuch powerful cauſes.

The revolution in manners, within the laſt half century, evinces the truth of this prediction. It was not until the preſent century that two barbarous cuſtoms were by degrees aboliſhed, which ought long before to have been proſcribed by reaſon and humanity. I mean the *Rondalla* and the *Pedreades*.

The former of theſe is a kind of defiance which two bands of muſicians give to each other. Without any other motive than that of ſhewing their bravery, they were wont to meet with ſwords and fire-arms, fire at each other, and then cloſe with ſwords. Will it be believed that this cuſtom ſtill exiſts in Navarre and Arragon? And that a ſimilar contet was iſſued in 1792, and a fight took place between two pariſhes in the ſuburbs of Sarragoſſa.

That of the *Pedreades* has but lately been diſuſed. This was alſo a kind of combat between two companies, armed with ſlings, who attacked each other with ſtones.

Such manners are equally ſhameful to thoſe who retain them, and the government by which they are tolerated. However, as there is ſcarcely any vicious cuſtom which has not its cauſes as well as apparent advantages, there are certain perſons who are diſpleaſed with the abolition of theſe inſtitutions, alledging that though they cannot be denied to be proofs of ferocity, they are equally ſo of courage, which they contribute to maintain among the people. The abettors of ſuch paradoxes even regret the revolution, which the work of Cervantes operated in the manners of Spain, by throwing an indelible ridicule on thoſe adventurers who, neglecting the duties of their ſtation, and the care of their families, were uſed to create themſelves dangers in order to enjoy the vain glory of braving them; who offered the protection of their reſtleſs valour to thoſe who did not aſk it, and whoſe importunate ſervice was at leaſt uſeleſs in a country where charity ever opens its hand to the wretched, and where the weak are protected by the laws.

It is thus that, by ſucceſſive gradations, more the effect of time than wiſdom, the manners of a people are reformed and ſoftened. Thoſe of the Spaniards have within the laſt century undergone, in other reſpects, ſenſible revolutions. Formerly, the point of honour, on which they were delicate to exceſs, occaſioned frequent duels. Were proofs wanting, their comedies and novels furniſh a ſufficient number. At preſent their courage, of a more tranquil nature, is reſerved for manifeſtation in time of war in defence of their country, without diſturbing its repoſe during the mild reign of peace. So much is this the caſe, that during ten years reſidence in Spain I never once heard of a real duel.

On

On the other hand, the Spaniards have preſerved their ancient virtues, patience and ſobriety; the former renders them conſtant in their enterprizes, and indefatigable in their labour; the latter preſerves them from exceſs, a vice too common in other countries of Europe. Without ſeeking, however, to diminiſh their merit, I muſt obſerve it is, in a great meaſure, the conſequence of their phyſical conſtitution, and the quality of their food. Their robuſt and muſcular bodies, dried and hardened by the active heat of a burning climate, are leſs acted upon by either a ſpare diet or a ſuperabundant meal. The fleſh of animals, at leaſt in the Mediterranean provinces of Spain, contains, in a given quantity, more nutritive matter than elſewhere. Their roots, leſs ſpongy than in countries where water contributes more than the ſun to their growth, are of a more nouriſhing ſubſtance. Strangers who go to live at Madrid ſoon perceive this, and if they yield to the appetite they may have upon their arrival, an endemial diſeaſe, called *Entripado*, a kind of cholic, which the phyſicians of the country only know how to treat, painfully informs them of their change of food and climate.

With reſpect to intoxicating liquors, the ſobriety of the Spaniard proceeds in a great meaſure from nature, which, always employing means proportioned to her end, has beſtowed on him a conſtitution analagous to the ſtrength of the wines produced by the ſoil, whilſt ſtrangers cannot with impunity drink of them to exceſs. Of this I have ſeen repeated and ſtriking proofs. Six years ago ſeven or eight ſervants, which the ambaſſador Montmorin brought from France with him, died miſerably. They were accuſtomed to drink the wines of La Mancha in the ſame proportion as the light wines of France; the conſequence was, they were perpetually in a ſtate of intoxication, and fell away by inches; while Spaniards who lived the ſame as they, felt no ill effects from their mode of living. Nothing is more uncommon than to ſee a Spaniard inebriated with wine, although that which he drinks is more ſpirituous than French wines; and if a drunken ſoldier be ſeen in the ſtreets of Madrid, one may ſafely lay a wager of twenty to one that it is a foreigner; and ten to one that it is a Swiſs.

We may remark on this occaſion, that ſobriety ſeems to be the inheritance of the inhabitants of the ſouth, as intemperance is that of thoſe of the north. We may alſo obſerve, that the people who commit moſt exceſſes in drinking are not thoſe whoſe ſoil produces the liquors by which they are inebriated, as if nature, which has given them the means of ſatisfying their thirſt and appetite, and adapted their organs to the uſe of theſe means, intended to puniſh them for ſeeking, at a diſtance, the food and liquor ſhe has created for others. Theſe diſpoſitions are undoubtedly deranged by other circumſtances; but it is eaſy for an attentive eye to trace the intentions of nature.

The Spaniards will pardon me for conſidering their ſobriety as a virtue of climate; this is but comparing them with other nations, and even all the individuals of the human ſpecies, who owe alike their qualities to their education, rank in life, habits, the examples they have before them, and a thouſand other cauſes which depend not on themſelves. It is ſtill a great merit not to reſiſt beneficial impulſes.

The Spaniards have, beſides, that of triumphing over influences which diſpoſe men to certain exceſſes, and for which they are produced as an apology. I have particularly in view a depraved propenſity, reprobated by nature, injurious to the fair, and too common among the people of the ſouth. This is abſolutely unknown in Spain.

Jealouſy, another outrage on the ſex, the object of our homage, ſeems alſo the conſequence of the influence of a climate which communicates its ardour to the ſenſes and imagination. This odious paſſion, formerly ſo injurious in its ſuſpicion, cruel in its precautions, and implacable and ſometimes atrocious in its reſentment, is much weakened among

among the modern Spaniards. If the lover be exactory, ready to take umbrage, and tormented by ſuſpicion, on the other hand, there are no people in Europe among whom is found a ſmaller number of jealous huſbands. The women, who were formerly hidden from the public, of whom it was ſcarcely poſſible to ſnatch a glimpſe through the openings of thoſe lattices, which undoubtedly owe their name to the vile ſentiment which was the cauſe of their being invented *, now enjoy full liberty. Their veils, the only remains of their ancient ſervitude, ſerve at preſent but to ſhelter their charms from a burning ſun, and render them more attractive. Firſt invented by jealouſy, they are now employed to very different purpoſes. Coquetry has converted them into one of its moſt ſeducing ornaments; and in favouring ſecrecy, they inſure impunity to the ſtolen pleaſures of love. The lovers who, under the balconies of their inviſible miſtreſſes, ſighed without hope, and had nothing but their guittar for witneſs and interpreter, are baniſhed to comedies and romances. Sieges are become leſs ſlow and difficult of termination, huſbands more docile, and more acceſſible the women. Woman! who but at the word is ſenſibly affected? Who but is diſpoſed to forgive their caprices, to ſubmit to their cruelty, and indulge their weakneſſes? You particularly, foreigners, who have ſighed at the feet of a lovely Spaniard, when you remember your chains, do you not feel all theſe ſenſations? Shall I attempt to trace a feeble ſketch of the object of your vows, and call again to memory your enjoyments? Or, if they have diſappeared, from abſence, from time, or inconſtancy, which anticipates its effects, ſhall I endeavour to mingle ſome conſolation with the bitterneſs of your regret?

The women of every country have particular charms by which they are diſtinguiſhed. In England, by the elegance of their ſhape, and modeſty of their carriage; in Germany, by their lips of roſes and enchanting ſmile; and in France, by that amiable gaiety which animates all their features. The charm felt on approaching a Spaniſh lady has ſomething of deception which is not eaſily defined. Her coquetry is more frank, and leſs ſtudied than that of other women. She takes leſs pains to be agreeable to every one. She rather weighs the ſuits of her lovers, than counts their number; and her choice once made, a ſingle one ſuffices. Or if ſhe does not neglect her ſucceſs, ſhe is nevertheleſs above all grimace. She owes but little to the aid of the toilet. The complexion of a Spaniſh beauty is never ornamented with borrowed brilliance: art ſupplies not the colouring which nature has refuſed by expoſing her to the influence of a burning climate. But how many beauties compenſate for her want of colour? Where are finer ſhapes to be met with than with them? Where greater eaſe of motion, where nicer delicacy of feature, where a more ſweetly tripping gait? Grave, and rather melancholy, at firſt, ſhould one of theſe beauties caſt on you her large black eyes, ſo full of expreſſion, ſhould ſhe accompany her glances with a ſmile—inſenſibility itſelf muſt fall enſlaved before her. But if the coldneſs of his reception diſcourage not her admirer from addreſſing her, ſhe is as decided and mortifying in her diſdain, as ſhe is ſeducing where ſhe allows of hope.

In the laſt caſe ſhe does not make her lover languiſh long; but perſeverance muſt ſurvive enjoyment in Spain, and it is not to this country that the deſcription of love, in a well known idyll is applicable;

"*Nouriſhed by hope, it dies in midſt of bliſs.*"

The fortunate men whom ſhe deigns to conquer, and who are called *Cortejos*, are leſs diſintereſted, but not leſs aſſiduous than the cicisbei of Italy. A total ſacrifice is re-

* *Jalouſie*, in the French language, ſignifies a lattice.

quired of them. They muſt give proofs of this at all hours of the day, accompany their *well beloved* to the public walk, the theatres, and even the confeſſional. But many a ſtorm diſturbs their ſerenity. A momentary diſtraction is treated as an infidelity. The ſlighteſt incident excites ſome apprehenſion. One would ſay that in Spain jealouſy has deſerted Hymen to take refuge in the boſom of love; and that it more particularly dwells with that of the two ſexes which ſeems the rather calculated to inſpire than feel this cruel paſſion. In one word, their chains are not ſo eaſy to be borne, as difficult to avoid. The Spaniſh beauty is rigorous in many reſpects; her caprices are rather haſty, and too obedient to the impulſe of an ardent imagination. But that which is not eaſy to conciliate with her eternally varying fancies, is the conſtancy of Spaniſh women in their attachments. The intoxication they cauſe and experience, far different from all extreme agitations or affections of the mind, which continue but a ſhort time, is prolonged greatly beyond the common term; and I ſaw, during my reſidence in Spain, more than one ſuch paſſion continue conſtant till the parties expired of age. May not this be accounted for by a religious ſcruple, certainly ill underſtood, as moſt ſuch ſcruples are? May not the conſcience of a Spaniſh lady, ſufficiently complaiſant to permit her one gratification which offends her duty, be terrified at a ſucceſſion of infidelities? In the firſt may ſhe not poſſibly find an excuſe for her conduct in human infirmity, in the irreſiſtible wiſh of the heart, which inclined her towards one object, deſtined by nature to fix her affections? Would ſin reſume its uglineſs at a ſucceſſive infidelity?

It belongs to thoſe who are acquainted with the female heart and conſcience to judge of this conjecture. It is certain, that in Spain, more than any other country, both men and women appear to conciliate the irregularity of manners with the moſt ſcrupulous obſervance of religious duties. In many countries theſe exceſſes alternately ſucceed each other. In Spain they are ſimultaneous; and the women, in conſequence of this ſtrange mixture of religion and frailty, ſeem to aim leſs to prevent ſcandal, or conceal their conduct, than to eſtabliſh a kind of equilibrium between their faults and their merits.

How many men have I known, who have led an extreme diſorderly life, yet frequented public worſhip with an aſſiduity, which even true chriſtians do not conſider as an indiſpenſible duty, who carefully obſerved every injunction of the church relative to abſtinence, rendering its miniſters at the ſame time almoſt degrading homage!

How many women abandoned to an attachment utterly inconſiſtent with their duty, ſurround themſelves with relics, and bind themſelves by vows to the performance of actions indifferent in their own nature, and ſcrupulouſly fulfil them.

I believe hypocrites to be very rare in Spain; but to compenſate for this, the ridiculous aſſociation of certain moral improprieties with ſuperſtitious practices is more common there than elſewhere. Is this to be attributed to a want of knowledge, or the criminal complaiſance of the confeſſors, who are thus prodigal of the indulgence of which they themſelves ſtand in need? Or is it the climate which muſt ſerve as an excuſe for ſome vices, as it is the cauſe of ſome virtues? And does this climate enforce the gratification of certain frailties too imperiouſly for conſciencies, ſcrupulous in other reſpects, to be terrified at compliance?

To endeavour to explain the diſſoluteneſs of morals, is to acknowledge its exiſtence. Yes, depravity of this deſcription is carried to great lengths in Spain. Frequently does the ſex deſtined by nature to wait for pleaſure, invite to enjoyment with effrontery. It is not in this country unuſual to receive written intimations of deſires which one has unwittingly engendered; neither is this licentiouſneſs reſtrained by the dreadful conſequences that ſucceed it. That horrible preſent, which the new world has made to the

old,

old, in Spain, has become hereditary in families, and by the degeneracy of many of thoſe races which are termed illuſtrious, and the extinction of others, a fatal evidence is afforded of its baneful influence. This ſcourge, to which the nation ſeems to have become accuſtomed, is of the moſt alarming nature, when it affects a perſon born under a different climate: and if the thouſand charms, in the beauties, whoſe attractions I take delight in celebrating, draw ſome irreſiſtibly into their ſphere, the dreadful apprehenſions with which a foreigner muſt be inſpired, who by experience or report becomes acquainted with his danger, may reaſonably juſtify the prudence which ſome have the power of exerciſing, and excuſe an eſcape from their ſway.

This depravity, however, is far from being ſo general as exaggerating libertines are pleaſed to affirm; even in Madrid there are families whoſe conduct is exemplary, faithful huſbands, and wives who are models of modeſty and propriety; their daughters, although in general not reſerved in their carriage, grant leſs than fancy is pleaſed to expect from their demeanor, for nothing is more rare than their anticipation of the rights of matrimony. If opportunities of purchaſing pleaſures, equally ſhameful and eaſy to obtain, are frequent for thoſe who ſeek them, at leaſt proſtitution is neither ſo public nor impudent as in other countries. The police, by ſeverely prohibiting its ſcandalous ſeminaries, obliges it to conceal itſelf, and ſometimes purſues it to its ſecret retreats. And what is ſingular in a country where diſſolute conduct is otherwiſe ſo common, in a country which contains ſo many rich idlers, one would in vain ſeek for thoſe eaſy ladies, who unbluſhingly diſplay in other countries the ſumptuous ſalary of their lubricity. Among theſe great people, who in other reſpects make a trophy of the corruption which their opulence keeps in pay, a ſort of ſhame preſides in the midſt of their irregularities, and myſtery embelliſhes even their moſt diſgraceful amours.

The ſevere virtue of the kings of the new dynaſty can alone explain this modern ſingularity. At their court, there has always been an abſolute neceſſity of concealing thoſe weakneſſes, which they did not excuſe by their example: to incur ſuſpicion only, would be acting with great imprudence: to make a ſhow of them, would be the height of temerity. Charles III. in this reſpect was rigid, even to tyranny. I was preſent once, while one of the moſt eminent perſons of his court denounced his own ſon, who had been ſeduced by the charms of a pretty actreſs; and requeſted His Majeſty to have the lover confined in a caſtle, and his miſtreſs in a houſe of correction; but it is not every young nobleman of the court of Spain who has ſo ſtrict a father, nor does every actreſs thus expiate the paſſions ſhe engenders.

To the honour of the fair ſex of Spain, I ſhall farther obſerve, that women rigorouſly baniſh from their ſociety thoſe familiarities, which are conſidered as indifferent by other nations, where the ſenſes, leſs quickly inflamed, betray leſs ſuddenly their diſorder; and that this diſtruſt of themſelves is at leaſt an homage which their weakneſs renders to modeſty. Thus a woman would not permit the moſt chaſte kiſs to be given her in public; and thoſe which are cuſtomary in our comedies, and of which no notice is taken, are entirely baniſhed from the Spaniſh ſtage *.

But

* I remarked ſome years ago, at one of the theatres of Madrid, a minute trait, obnoxiouſly trivial, and which, but for its exemplifying this exceſſive delicacy, ſo whimſically allied to the groſſeſt and moſt diſguſting manners, I ſhould ſcarcely venture to detail in a note. No traveller, who has paſſed through Spain, particularly Caſtile, can fail having obſerved groups of people, who, baſking in the ſun, amuſe themſelves in their lazineſs, by deſtroying the vermine with which their heads abound. Among lovers of this rank, the favoured youth, whoſe miſtreſs deigns to benefit him in this manner, has a double pleaſure on the occaſion, not only does he get rid of troubleſome companions, he, at the ſame time, receives a teſtimonial of the perfect devotion of the object of his views. It is neceſſary thus much ſhould premiſe my anecdote. The little French opera of Le Tonnelier, (the Cooper,) being tranſlated into Spaniſh, the ſcru-

But if a proper diſtance be kept they allow, and even provoke at times, thoſe wanton tricks at which decency would elſewhere be alarmed. Double-meanings however groſs, the coarſeſt jokes, even downright obſcenity, whatever the tongue can expreſs is readily overlooked. I have ſeen ladies admit of, nay even themſelves make, obſervations which men with the leaſt regard to decorum would deem admiſſible only at orgies, and ſing catches revoltingly indecent. When in what is termed *good company*, I have more than once been ſurprized with tales of rather more than a free deſcription, I have heard ſome ladies unbluſhingly, and without taking the ſmalleſt pains to varniſh their ſtory, relate the ſecret detail of their amorous meetings, and appear aſtoniſhed if perchance they ſhould ſee the leaſt embarraſſment in the countenance of any of their auditors.

Theſe delineaments, which I ſhall not be ſo unjuſt as to lay to the charge of all the Spaniſh fair, would not however alone prove the depravity of manners in Spain. Women, who permit themſelves freedom of expreſſion, and give the example of it, are certainly not on that account more ſeducing to perſons of delicacy, but they are not more eaſily ſeduced. On the contrary, a nation not yet entirely civilized, may have in its language a kind of ingenuouſneſs which renders expreſſions far from being entirely chaſte; and I ſhould be inclined to think that theſe modes of expreſſion, ſhocking to the decency of other nations, would diſappear were a more refined civilization, more precautions in the education of young perſons, almoſt excluſively abandoned to the government of ſervants, even in the moſt diſtinguiſhed houſes, and eſpecially were a better example, adopted. But can a young lady, who from the moſt tender age has been familiariſed to the groſſeſt expreſſions, who in companies, to which ſhe is frequently admitted, hears applauſe beſtowed on impudence, which diſdains to throw a tranſparent veil over the obſcenities in which it indulges; can one, whoſe ears are early accuſtomed to the indecent expreſſions which are permitted on the ſtage, and whoſe eyes repeatedly behold the wanton attitudes exhibited in the favourite Spaniſh dance, long preſerve in her imagination and language that virgin purity which is, perhaps, the greateſt charm of her ſex?

Mothers of families, with what have ye not to reproach yourſelves, who, given up to your paſſions, abandon your daughters to nature and chance. Future mothers, how ill do ye conceive your intereſt! A taſte for employment, ſome care beſtowed on the developement of that diſpoſition of which heaven has been prodigal to you, would make you rank among the happieſt as well as the moſt enchanting works of creation! Alas! you are neglected, you are left to yourſelves, and your corrupt attendants. You are, to our misfortune and deſpair, about to falſify the munificent intention of nature.

The character and manners of a nation can be known, but imperfectly, if regarded in their ſerious occupancy alone, or while under the dominion of the paſſions. It is much better ſeen in their entertainments, their games, and their fancies. Let us then view the Spaniards in theſe different relations.

Pulous tranſlator dared not hazard the furtive kiſs, which forms its denouement. But what does he ſubſtitute? In the laſt ſcene, while the maſter cooper is occupied in the interior of his workſhop, the journeyman enters by ſtealth, and ſets himſelf on the ground, between the legs of the lovely Fanchette, whoſe delicate fingers are employed in louſing his fortunate rival. They are in this ſituation when the jealous old man comes, and detects the two lovers in the act of giving and receiving this unequivocal pledge of mutual affection.

Engraved by George Cooke.

The Fandango.

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CHAP. XII.—*Manners and cuſtoms of Spain.—Their dances.—Games.—Pleaſures.—Repaſts.—Taſte.*

NOTHING more contraſts with the pretended gravity of the Spaniards, than their favourite dance the *Fandango;* a dance, truly national, and full of expreſſion, at which foreigners of delicacy at firſt take exception, but which they themſelves become delighted with at laſt.

No ſooner does the tune begin for the *fandango*, than every countenance becomes animated, and even thoſe among the ſpectators, who by their age and profeſſion are moſt obliged to gravity, have much difficulty in preventing themſelves from joining in the cadence. It is related, and the apologue is certainly appropriate, that the court of Rome, ſcandalized that a country renowned for the purity of its faith, ſhould not have long before proſcribed this profane dance, reſolved to pronounce its formal condemnation. A conſiſtory was aſſembled, the proſecution of the *fandango* was begun, according to rule; and ſentence was about to be thundered againſt it, when one of the judges obſerved, a criminal ought not to be condemned without being heard. The obſervation had weight with the aſſembly. Two Spaniards were brought before it, and to the ſound of inſtruments diſplayed all the graces of the *fandango*. The ſeverity of the judges was not proof againſt the exhibition; their auſtere countenances began by degrees to relax; they roſe from their ſeats, and their arms and legs ſoon found their former ſuppleneſs. The conſiſtory hall was changed into a dancing room, and the *fandango* was acquitted.

After ſuch a triumph, it may be imagined that the remonſtrances of decency have but little effect; its empire ſeems to be firmly eſtabliſhed. It is, however, different according to the places in which it is practiſed. It is frequently called for at the theatre, and generally cloſes private dances. In theſe caſes, the intention is no more than lightly indicated; but, on other occaſions, when a few perſons aſſembled together ſhake off all ſcruples, the meaning is then ſo marked, that voluptuouſneſs aſſails the mind at every avenue; its incitements cauſe the heart of the modeſt youth to palpitate with deſire, and re-animate the deadened ſenſe of age. The *fandango* is danced by two perſons only, who never touch, even the hand of each other; but when we view their mutually engaging allurements, their advances and retreats; when we obſerve the female, in the moment of her languor, announce an approaching defeat, and ſuddenly acquiring new courage eſcape from her conqueror, who purſues her, and is afterwards purſued in his turn; the manner in which theſe emotions are expreſſed by their looks, geſtures and attitudes; it is impoſſible not to confeſs with a bluſh, that theſe ſcenes are to the real combats of the Paphean queen, what our military evolutions in peace are to the real diſplay of the art of war.

They have in Spain, a dance yet more voluptuous than the *Fandango*, but it belongs rather to the provinces than the capital. It is the *Volero*. Andaluſia in particular appears to be its natural country; as it apparently was invented for the Andaluſians of both ſexes, a remnant of decency has baniſhed it almoſt generally from private balls; it is however given on the ſtage *.

A third

* A German traveller, who has lately publiſhed a little work on Spain, in which he modeſtly pretends to have only gleaned after me; and in which there are many beautiful pictures, very highly coloured, but with rather too much fameneſs. Mr. Fiſcher thus deſcribes the *Volero*:

"The play finiſhes; the ſcene changes to an elegant ſaloon. The orcheſtra ſtrikes up: the ſound of caſtanets is heard, and from oppoſite ſides of the theatre a male and female dancer dart forward, both dreſſed,

A third dance peculiar to the Spaniards is the *Seguidilla.* The figure is formed by eight perfons; at each corner the four couple trace, although but *en paſſant* the principal movements of the Fandango. A Spaniſh female dancing the Seguidilla, dreſſed in character, accompanying the inſtruments with caſtanets, and marking the meaſure with her heel with uncommon preciſion, is certainly one of the moſt ſeducing objects which love can employ to extend his empire.

The Spaniſh nation has a decided taſte for dancing, and private balls are very frequent. They have a ſort of preſident called *baſtonero* whoſe duty it is to ſee that good order reigns in the midſt of pleaſure. It is his province particularly to take care that each of the party figures in a minuet, and to fix partners in ſuch manner as to make as many happy as poſſible, and as few as can be avoided wretched.

As to public balls and maſquerades, in the reign of Philip V. they were forbidden throughout all Spain. The Count de Aranda, who, while attentive to the police of the capital, did not neglect its pleaſures, revived them; but theſe two amuſements did not outlive the retreat of the miniſter.

The common people have ſome particular games, which have a tinge of the gravity of the nation. The one, a weak and miſerable image of thoſe which kept the force and activity of the ancients in conſtant exerciſe. It conſiſts in throwing a bar of iron to a certain diſtance, and hence is called *El juego de la barra.*

Another game, a favourite with the vulgar, but ſtill more inſipid, is common to Italy as well as Spain. A number of men are ſeated round in a circle, and hold up in their turn two, four, ſix, or ten fingers, rapidly naming aloud the exact number of fingers held up.

Genteel perſons have recreations of another kind. In thoſe aſſemblies, where idleneſs collects parties together, their principal amuſement conſiſts in card playing, *hombre* is on theſe occaſions their favourate game; this game is of Spaniſh origin, as its name announces, *hombre* ſignifying *man,* but the Spaniards call it *triſſilio;* beſides at cards, they amuſe themſelves with a ſort of game at billiards, called *jueyo de truecos.*

In general they ſeldom aſſemble to eat at each others houſes. They are little acquainted with the innocent and healthful pleaſures of the country. But few among them even are fond of the chace; of which the monarch and his family ſeem to poſſeſs the excluſive privilege. The amuſements of the country appear to have no attrac-

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dreſſed in the Andaluſian coſtume, appropriate to the dance. At their entrance, they fly towards, as if they mutually fought, each other. The male dancer, ſtretches out his anxious arms towards the female, who ſeems as though about to abandon herſelf to his embrace; but, all at once ſhe turns and avoids him. He, made angry, ſhuns her in return. The muſic ceaſes, they both appear irreſolute, but the orcheſtra beginning, again ſets them in motion.

"The male then expreſſes his deſire with encreaſed vivacity. The female ſeems more inclined to anſwer it. A voluptuous languor is depicted in her eyes, her boſom heaves more violently, her arms are extended towards the object which purſues her: but a freſh return of ſadneſs robs him of her a ſecond time; a ſecond pauſe re-animates them both.

"The orcheſtra again plays up, the muſick encreaſes the quickneſs of its meaſure, and aſſumes wings to overtake the velocity of their motions. Full of deſire, the male ruſhes towards the female; their lips are half opened; ſhe is again feebly reſtrained by a veſtage of modeſty. The cruſh of muſic redoubles, and with it, the livelineſs of their movements, a ſort of veſtigo, a delirium of extacy, ſeems to poſſeſs them both: every muſcle appears to invite and expreſs enjoyment; their eye-ſight fails. At once the muſic ceaſes, and the dancers vaniſh (if I may uſe the expreſſion) in delicious languiſhment, the curtain falls, and the ſpectators recover their ſenſes."

Such an animated deſcription is more like an apology than a ſatire. It, however, is not wanting of exactitude. Some years back the *volero* was given at Paris; but decency had ſhaded its tints, and pleaſure itſelf did not require they ſhould be made more lively.

tions for the Spaniards. Their country-houſes might eaſily be numbered. Among the many rich individuals who inhabit the capital, there are, perhaps, not ten who have a country retreat. With reſpect to the caſtles, ſeats, &c. ſo numerous in France, England, and Italy, and which contribute to the embelliſhment of the environs of their capitals, there are ſo few in the vicinage of Madrid and the reſt of the Peninſula, that many travellers are of opinion the proverbial expreſſion, *building caſtles in Spain*, is thence derived. This however is evidently an erroneous opinion from the number of caſtles in ruins found in moſt of the provinces.

The rich ſubjects of the kingdom therefore concentrate all their pleaſures within the cities. Muſic is one of thoſe for which the Spaniards have the greateſt taſte. They cultivate this art with ſucceſs; not that their national muſic has made any great progreſs, for it has a particular character; it is to be found moſtly in little detached airs, called, in Spain *Tonadillas* and *Seguidillas*; ſometimes agreeable melodies, but of which the modulations are little varied, and prove that the art of compoſition is ſtill in its infancy. In return for this they do the greateſt juſtice to the grand compoſitions of Germany and Italy, which always form a part of their frequent concerts. They have many lovers of harmony, but few compoſers worthy of notice.

A young poet at Madrid, *Don Thomas Yriarte*, who died in the prime of life, produced a few years ſince a poem on muſic, wherein didactic dryneſs is compenſated by ſeveral epiſodes and brilliancy of imagination. Connoiſſeurs aſſure us that the character of Spaniſh muſic in particular is there given by a maſterly hand.

Balls and concerts are not the only entertainments at which the Spaniards aſſemble. They have alſo their *Tertulias* and *Refreſcos*. The Tertulias are aſſemblies very ſimilar to thoſe of France. Perhaps more liberty reigns in the former, but langour ſometimes eſtabliſhes its throne there as well as in the midſt of our parties.

Women in general ſeldom ſeek occaſions to meet together; each aſpires to be the center of a Tertulia; and excluſive pretenſions undoubtedly contribute to baniſh from Spaniſh ſocieties what we call *French gallantry*. Women are there admired, and even adored, as well as elſewhere; but when they fail of inſpiring a lively ſentiment, the men ſeldom pay them thoſe attentions which our politeneſs prodigally and indiſcriminately beſtows upon every individual of the amiable ſex. Not but the Spaniard poſſeſſes gallantry. Its ſubtile lineaments are ſtrewed with profuſion throughout the romances of the country, and in their comedies; but to a foreigner's eye it appears burleſqued by exaggeration; it has not thoſe eaſy terms, the elegant expreſſions which is granted to be poſſeſſed by the French, given by thoſe nations who are jealous of them. With them a pretty woman, who is not the object of a man's affection, is only a lovely creature, who expects, but does not exact, homage; and when paid her, the courteſan is thanked with a ſmile. Among the Spaniards, where ſhe can manage to make herſelf reſpected, ſhe is a divinity who muſt be worſhipped. A ſonnet or vandeville is ſufficient for one. The other muſt be addreſſed in the ſublime accents and cadence of the ode.

Their *Refreſcos*, the invention of luxury and greedineſs, contribute no leſs than the Turtulias to facilitate the intercourſe of the two ſexes. In general, theſe are only light repaſts, prepared for perſons from whom viſits are received, and are as a prelude to the Tertulias; but on great occaſions, when a wedding, chriſtening, or the birth day of the head of a family is to be celebrated, the Refreſco becomes an important and a very expenſive affair. All the family acquaintance are invited; and, in proportion as they arrive, the men ſeparate from the women. The latter take their ſeats in a particular chamber, and etiquette requires they ſhould remain alone until all the company be aſſembled,

aſſembled, or at leaſt until the men ſtand up without approaching them. The lady of the houſe waits for them under a canopy, in a place ſet apart in the hall, which, not yet entirely aboliſhed, was formerly called the *Eſtrado*, over which is commonly ſuſpended an image of the virgin. The appearance of refreſhments, at length, enlivens every countenance, and infuſes joy into every heart; converſation becomes animated, and the ſexes approach each other. The company are firſt preſented with great glaſſes of water, in which little ſugar-loaves, called *Azucar eſponjado*, or *roſado*, ſquare and of a very ſpongy ſubſtance, are diſſolved; theſe are ſucceeded by chocolate, the favourite refreſhment twice a day of the Spaniards, and which is believed to be ſo nouriſhing, or at leaſt innocent, that it is not refuſed to perſons dangerouſly ill. After the chocolate come confectionary of all ſorts, and all colours. People are not only cloyed with them in the houſe of feſtivity, but they put quantities of them into paper, and even into their hats and handkerchiefs. And a ſtranger admitted for the firſt time, to theſe kinds of feſtivals, in which intoxicating liquors only are ſpared, ſeeks to diſcover the ſober nation and finds it not.

A ball or card-tables commonly ſucceed the Refreſco; but it very ſeldom happens that the entertainment is concluded with a ſupper. This is always a very frugal repaſt with the Spaniards, and at which they rarely aſſemble.

Their cookery, ſuch as they received it from their anceſtors, is of a nature to pleaſe but very few people. They are fond of high ſeaſonings; pepper, pimenta, *tomates*, or ſaffron, colour or ſeaſon moſt of their diſhes. One of them only has been introduced amongſt ſtrangers, and the French kitchen has not diſdained to adopt it; this is what in Spain is called *Olla-podrida*, and is a ſort of hotch-potch of every kind of meat cooked together. There is, however, generally a mixture in the Spaniſh cookery, except in ſome obſcure families, attached to ancient cuſtoms; in moſt houſes it participates of the French cookery, and in ſome this has wholly ſupplanted that of Spain.

Thus are the French every where imitated, whilſt they are ridiculed, and ſometimes deteſted. The modes of France have reached Spain as well as many other countries. French cloths, faſhions and colours, are worn under the Spaniſh cloak. The veil is no longer worn for concealment but by the women of the loweſt claſſes; for others it ſerves but to hide the diſorder of their dreſs when they go out on foot. Except in this caſe, their head dreſs and whole attire are carefully adjuſted to the French faſhion. The Spaniſh manufacturers exert themſelves to the utmoſt to ſerve the reigning taſte, and to follow it through all its rapid variations, without the aid of our manufacturers; but they are yet far from being able to attain their end. Great cities, and even the court, tacitly acknowledge this by having immediate recourſe to Paris or Lyons, as to the only true ſources of faſhions. In this reſpect, as in many others, the Spaniards who affect the *bon ton* confeſs the ſuperiority of ſome foreign nations, and receive from them leſſons of elegance. Their tables are ſerved after the French manner; they have French cooks, houſe ſtewards, and valets de chambre. French milliners are employed to invent and make new dreſſes for the ladies. Their heavy inelegant equipages diſappear by degrees, and are exchanged for thoſe of England, or their French neighbours, which, however, latterly are imitated by the coach-makers of Madrid and elſewhere. They neglect no means of engaging French artiſts and manufacturers to ſettle in Spain.

This homage is not confined merely to frivolous objects. The beſt French and Engliſh works on morality, philoſophy, and hiſtory are tranſlated into the Spaniſh language. French literary works of mere amuſement are for the moſt part thoſe only which have but little merit in the eyes of the Spaniards; and their taſte, in this reſpect ſtill appears far from inclining to change.

Their imagination, bold to extravagance, finds French ideas cold and timid. Accuſtomed to exaggeration and redundance, they are unable properly to value either juſtneſs or preciſion. The fine ſhades of French ridicule and manners eſcape their eyes, too much accuſtomed to caricature; and with reſpect to ſtyle, their ear, vitiated by the pompous proſody of their cadenced periods, by the frequent and affected repetition of their ſonorous words, can find no grace in accents which ſpeak more to the mind than the ſenſes; and the roundneſs of elegant periods is to them entirely loſt.

What chiefly prevents a reform in their literature, are the models which they ſtill admire and endeavour to imitate; theſe are diſtinguiſhed by that bad taſte which formerly infected all the nations of Europe, and to which the firſt literary men in France have paid an ample tribute, but on the wreck of which the maſter-pieces of the age of Louis XIV. have been erected.

Had French literature remained in the ſtate it was when Ronſart, Marot, Benſerade, Voiture and Balzac wrote, their very defects would ſtill ſerve as models. What might have happened in France, had no improvement been there made in letters by a concurrence of circumſtances, has happened to the Spaniards. Since the time of *Calduon*, *Lopes de Vega*, *Quevedo*, *Rebolledo*, and others, whoſe imaginations, though wild and licentious, were brilliant and fertile, no author with theſe ſplendid qualities, and at the ſame time endowed with that good ſenſe which directs their uſe, has appeared in Spain. Letters have, for upwards of a century, been in the ſame ſtate. The works of theſe men of genius, frequently extravagant even to abſurdity in their conceptions, ſtill continue models of ſtyle; and their example, without having produced any thing comparable with that which in them is juſtly admired, has ſerved, and ſtill continues to ſerve, as an excuſe to every reprehenſible irregularity of imagination, and all the violent bombaſt of falſe eloquence.

It is to the Spaniſh ſtage that this reproach particularly applies.

CHAP. XIII.—*Of the Spaniſh ſtage.—Of their Plays, both ancient and modern.—Defence of the Spaniſh ſtage and critique on the French.—Spaniſh verſification.—Actors.—Little modern Pieces.—Majos, and Gitanos.*

IT would, however, be unjuſt to judge of the Spaniſh theatre according to the critique of Boileau.

It undoubtedly ſtill ſuffers pieces in which the law of the three unities is flagrantly violated. But there are many Spaniſh pieces, in which it is not tranſgreſſed in ſuch a manner as to be prejudicial to the intereſt. The Spaniards themſelves condemn moſt of their heroic comedies, in which princes and princeſſes, from all corners of Europe, aſſemble without motive, as well as without probability, and are by turns either actors or the ſport of the moſt incredulous adventures, relate, converſe, and joke even in the moſt critical ſituations, and conclude by uſeleſsly ſhedding their blood without giving occaſion to a ſingle tear. Although ſeveral of theſe pieces have original beauties, and all afford proof of the talent of the Spaniards for inventing complicated plots and dexterouſly weaving the *dènouement*, the Spaniards found not the much conteſted reputation of their theatre upon this alone.

But there are ſome of their productions which they juſtly conſider as intitled to the admiration even of ſtrangers. Theſe are their characteriſtic pieces, which, though not ſo well conducted as the beſt French pieces of the ſame kind, and though they cannot boaſt the ſame accuracy in the choice of ideas and expreſſions, are generally pleaſing

in the ground work, faithful in moſt of the characters, and ſhew an uncommon fertility of imagination in their authors.

The pieces which the Spaniards call *de Capa y Eſpada*, are thoſe particularly which preſent an exact repreſentation of ancient manners, and theſe comedies are the real ſources to be reſorted to in the ſtudy of them. It is in theſe pieces that the generoſity by which their manners are ſtill characteriſed, thoſe flights of patriotiſm and religious zeal, which formerly rendered the Spaniards capable of the greateſt efforts; the ſallies of national pride, which the pomp of ſtyle renders ſo noble; that irritability with reſpect to the delicate ſubjects of love and honour, which made duels ſo frequent in Spain, before the cauſes which ſoftened the manners of Europe had gained ſufficient influence over the modern Spaniards; the ſacrifices and ardour of hopeful love, the anguiſh of unhappy love, and the ſtratagems of thwarted paſſion are traced in the moſt lively colours. Such are the outlines of theſe comedies, of which the Spaniards are as fond as they were at the time they firſt appeared.

Their authors, of whom *Lopes de Vega*, *Roxas*, *Solis*, *Moreto*, *Arellano*, and particularly the immortal *Calderon de la Barca* are the moſt celebrated, have ſo eſtabliſhed this kind of comedy by their ſucceſs, that more modern authors, ſuch as Zamora and Canizaries, who wrote at the beginning of this century, dare not attempt any other.

The Spaniſh theatre has nevertheleſs experienced ſome happy changes latterly: and although real tragedy, unmixed with matter unworthy of its noble nature, has long been entirely unknown among them; within this little time they have repreſented ſome of the beſt French pieces literally tranſlated; ſuch as Andromache, and Zara; and ſome modern authors have even ventured on tragedy; *Don Vincent de Huerta*, who is lately dead, wrote a piece called *Rachel*. The ſerious drama has likewiſe made its appearance on the Spaniſh ſtage, and the *Deſerter*, and *Eugenia* from the French, have been favorably received, as well they are no longer ſtrangers to what is termed noble comedy by the French; for example they have repreſented the *Miſanthrope*, from Moliere, which met with great applauſe. Some authors of the country have recently hazarded pieces of this deſcription. *Don Thomas Yriarte* has given the public *El Senorito mimado* (the ſpoiled child), and *La Senorita mal criada* (the ill inſtructed Miſs); *Moratin*, a young poet, who does honor to the literature of Spain, and who by order of the court travelled through the country for ſome years, in order to gather ſubjects from life, with which to ornament and reform the ſtage; *Moratin* has alſo written a piece in this ſtyle called *El viejo y la nina*, (Miſs in her Teens and the Septagenerary,) which was performed with great ſucceſs at Madrid, and earned its author a conſiderable penſion, a circumſtance of which there have been but few examples in the world, and which excited conſiderable jealouſy in many, but aſtoniſhment in every body. Comella, another young poet, has alſo produced ſeveral agreeable pieces, one among others, the bent of which (for the *genus irritabile vatum* belongs to all countries), was to ridicule his cotemporary.

But theſe ſucceſsful eſſays have been inſufficient to root out that bad taſte which has been long combated not only by the greater part of their literary characters but as well by thoſe Spaniards unacquainted with any other theatre than their own. Will it however be believed that there are ſome among them, who not only defend with warmth the Spaniſh ſtage, but rebut with uſury the blame which all Europe is agreed in laying on them.

In 1749 Don Blas Naſure, the King's librarian, reprinting the comedies of Cervantes, thus expreſſes himſelf at the head of the work: "We may very ſafely affirm without rendering ourſelves liable to that charge which is made againſt our nation of prizing it-

ſelf highly while it thinks too meanly of others, that *we have a far greater number of plays, perfect in themſelves, and written according to rule, than what the Engliſh, French, and Italian, collectively, can boaſt.*"

Much more recently, that is, in 1791, Don Paſcal Rodriquez de Arellano propoſed a work to be publiſhed by ſubſcription, intitled, *Teatro antiguo Eſpanol arreglado a los mas principales preceptos del arte dramatica*, in which he promiſes divers dramas, or comedies, written by Calderon, Lopes de Vega, Solis, Moreto, Roxas, Hoz, and Tyrſo, in which the three unities are obſerved, the ſtyle free from hyperbole and affectation, from vain ſubtleties, from the heterogenous mixture of heroes and clowns, from inequality of the perſonages, and from indecent epiſodes and quolibets. He thus propoſed to make an ample apology for the nation as to this branch of literature, at the ſame time preſerving in theſe pieces, in ſpite of ſo many ſuppreſſions and corrections, all the force, beauty of expreſſion, and grace of the originals. Let Spaniſh critics decide, if he has kept his promiſe.

But what will appear more ſurprizing to readers converſant in French literature, a Spaniard of the preſent time, at leaſt who is very lately dead, a Fellow of *the Academy of the Spaniſh language*, *La Huerta*, expreſſes himſelf in this manner on the dramatic genius and poetry of the French, in his preliminary diſcourſe on the Spaniſh theatre: "A ſingle ſpark from the brilliant fire viſible in this divine poem, La Pharſalia, would be ſufficient *to give warmth and life to the weak and palſied muſes of France*, without excepting the Limouſins, who placed nearer to Spain, received perhaps, on that account, in a ſlight degree, the influence of the enthuſiaſm and poetic talent characteriſtic of our nation.

"How is it poſſible" he adds "that this divine fire ſhould animate the minds of men, born and educated in marſhy countries, deſtitute of ſulphur, ſalts, and ſubſtance; countries in ſhort ſo little favoured by the ſun, that their fruits ſcarcely ripen, notwithſtanding the artificial means they uſe to expoſe them to its rays. Hence the mediocrity apparent in the greater part of their works. Hence the natural impoſſibility that the French ſhould exceed in poetry and eloquence, thoſe boundaries limited to ſpiritleſs minds, and fancy void of vigour. Hence, alſo, the aſtoniſhment occaſioned in them *by the grand ſublimity of Spaniſh productions*, the faults in which, where any exiſt, are ſo eaſy of correction.

"The great Corneille was only eſteemed great among his countrymen from having *badly imitated* a work of one of our leaſt excelling poets, the work itſelf much under mediocrity. (But ſee how low M. de la Huerta rates *Le Cid.*)

"Athalia by Racine is looked upon as his maſter piece; what is there to be ſeen in it but a continual evidence of a want of powers? Since, without noticing the extraordinary number of actors, levites and troops introduced, a ſtale trick to make amends for incapacity of ſupporting the plot, and the momentum of the piece, without having recourſe to fiction; the affected regularity, and even the helleniſm which he makes ſhift to ſubſtitute for *want of talent*, prove ſufficiently that the piece *ought never to have paſſed the walls of the college in which it was compoſed.*

"Can it then be looked upon as extraordinary that this hero of the French poetry, after employing three years in compoſing his *Phœdra*, ſhould end with laming the character of Hypolitus? The whole of this tragedy is replete with conſiderable faults, and the choice of an action ſo abominable in itſelf, even in the eyes of the leaſt ſcrupulous or delicate, is certainly not the leaſt. Merely from reading of it once I formed *a very mean idea of Phœdra*; but after ſeeing it acted at Paris, where Mademoiſelle Dumeril, a celebrated actreſs, performed the part of Phœdra, I was ſo greatly hurt at ſeeing all

decency and probability ſo violently outraged in her declamation, *that I firmly reſolved never to be ſhocked in the ſame manner again.*" What a puniſhment for the author and the actreſs!

Don Juan Cadahalſo, (a Spaniard in other reſpects very well informed, with whom I made acquaintance on my firſt journey to Spain,) after ſpeaking at firſt in high terms of Phœdra, alluding to the famous recital of Theramines, thus expreſſed himſelf; *Sir, in this Phœdra, the ſtile is of that pompous and inflated deſcription which we are ſo much accuſtomed to criticiſe in our poor authors of the laſt century.* — When in ſupport of his aſſertion he tranſlated literally this relation, in order to ſatisfy thoſe among his auditors, who were admirers of the French drama, that when authors attempt to imitate Spaniſh ſublimity, they muſt either do ſo by an exact tranſlation, or failing of this, remain in a ſtate of inferiority, both ridiculous and ſhameful in the eyes of all Spaniards; notwithſtanding the unconſciouſneſs of French hearers to their debaſed appearance. Such is the ſublimity of Racine in the opinion of the Spaniards; whom, on the other hand, the French conſider vaſtly to ſurpaſs the beſt of Spaniſh writers.

La Huerta does not treat Moliere leſs rigorouſly, than our two tragic writers. In a note which precedes *el Caſtigo de la Miſeria*, (the Puniſhment of Avarice,) one of the pretended chef d'œuvres of the Spaniſh language, which he reprinted, he takes exception at thoſe who reckon this piece to finiſh at the ſecond act. He ſays "It is rather extraordinary that thoſe who blame it for this defect, ſhould tolerate and admire *Tartuffe*; of which the firſt, the ſecond, and the fifth act are entirely ſuperfluous. Moreover, this celebrated comedy finiſhes in the ſame manner as our *Intermes*, and if the indecency of it be excepted, bears much reſemblance to them." We ſhall notice, as we proceed, what theſe *Intermes* are, and whether this compariſon does much honour to the ſagacity of M. de la Huerta.

It however remains for thoſe foreigners to decide, who are acquainted with the Spaniſh ſtage, whether it be blindneſs, or ill will, that has actuated this unmerciful cenſor in his judgment. For my part, without retaliating his injurious ſentence, I ſhall only obſerve that all thoſe who poſſeſs any veſtige of taſte, either in Spain or in other countries, agree, that with the exception of ſome few modern pieces, the Spaniſh drama is replete with the moſt ſhocking defects. Improbable incidents are crowded on each other, it is filled with extravagance, and its language is a medley of pompoſity and vulgarity. It mixes the moſt miſerable parade with affecting and ſometimes terrible parts; it has continually a *fool* called *gracioſo* on the boards, ſometimes humerous, but more frequently inſipid, who by his wretched jokes is ever diſtracting the attention of the audience from the piece. Lovers are diffuſe and talkative. The pleaſure ariſing from features of delicacy, which occaſionally occur, is deſtroyed by long diſſertations on love. Scarcely one of their plays is free from the blame imputed by M. de la Huerta to the ſuperfluous recital of the fate of Hypolitus by Theramines; not only are ſuch repetitions common but diſguſting at the ſame time by their digreſſions, their gigantic compariſons, and their extraordinary abuſe of common ſenſe. On the other hand, the plot preſents ſuch an intricate labyrinth that there is ſcarcely any play, to which theſe verſes of Boileau may not be applied:

> Et qui debrouillant mal une penible intrigue
> D'un divertiſſement me fait une fatigue.
> Whoſe mazy plot, unravelled with pain,
> Inſtead of pleaſing, but fatigues the brain.

This fatigue however does not appear to be felt by a Spaniſh audience, not even by thoſe whoſe minds are leaſt improved. Whether the people naturally poſſeſs an aptitude

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to follow the thread of a plot however complicated, whether it be the result of habit, it is yet certain that they have in this respect a great advantage over other nations, and particularly the French. On this account much art becomes necessary, in fitting a Spanish comedy, (and there certainly are many well worth adopting,) to the French stage. This tribute has been paid it by our forefathers. The service of the Spanish drama to Moliere and Corneille is well known. Corneille extracted the chief beauties of the *Cid* and *Heraclius* from Guillen de Castro, and Calderon; and took much of his *Liar* from the Spanish. Moliere is indebted to the same authority for his *Don Juan* or *Le Festin de Pierre;* but at the same time all their skill was necessary to these men of genius, in modelling the strange originals which they had to work upon for the French stage, for none of these Spanish compositions could have been represented on their boards, without undergoing a change, the best of them being so much filled with relations repugnant to the taste and manners of France. An actor at one of our smaller theatres has recently however made some fortunate essays in this line; although his *Ruse contre Ruse*, (Stratagem for Stratagem) and his *Nuit aux Aventures*, (a Night of Adventures,) may rather be looked upon as pretty close imitations, than translations of two Spanish comedies. Exact translations of Spanish pieces would be next to impossible. Duperron de Castera in 1738 published extracts from several Spanish plays with reflections and translations of the most difficult and remarkable passages. Mr. Linguet gave some of them to the public on entering his literary career. But separate from his making a bad selection he knew not enough of the Spanish language to fulfil his task completely; on which account his translations are no more than abridgements, in which nothing but the skeleton of a dramatic poem is preserved; and the passages not rendered were not those which displeased the translator, but such as he did not understand, so that I do not conceive that there exists one single Spanish piece perfectly and wholly translated into the French language. A principle obstacle to faithful translations exists in the innumerable puns with which the Spanish plays are filled, as well as all their other works of fancy; and as their minutely subtile genius is ever prompt to seize the slightest resemblances, and produce at every instant allusions to localities, customs and anecdotes of the day; these works become excessively difficult of comprehension even to the natives, and are almost impossible to be understood by foreigners; so that a translation of them, unless loaded with comments at every page, would be almost entirely unintelligible.

The Spaniards have always had a great aptitude for poetry. Their talent for extemporaneous productions is less celebrated, but is equally deserving of fame with that of the Italians. I have frequently been witness to ability of this description, which was almost miraculous. I have seen Spanish versifiers little known beyond their sphere, who have supported poetic challenges, which would have dismayed our most fertile and ingenious composers. I have been witness to their engendering strophes of ten lines formed upon the same rhyme, and which by the Spaniards are called *decimas*, in the twinkling of an eye. A stander-by gives for subject of such a piece, the last line which he fixes on at hazard; this is called *echar pii*. Instantaneously the poet produces nine others which are to precede the line given, which forms a natural close: and frequently neither the rapidity of these *improvisos*, nor the fetters with which the author is shackled, prevent their possessing considerable merit. They are at any rate little burlesque pieces, the emphatic utterance of which serves to unwrinkle the brow of the most serious; in which it is true good sense is sometimes outraged, but in which the laws of poetry are rigorously observed.

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The forms of poetry are ſingularly various among the Spaniards. Their language, very flexible and fitted for inverſions, comprizes all deſcriptions of metre common to European tongues; but they have one in addition peculiar to themſelves. Their rhimed verſe is eaſily diſtinguiſhable both by the eye and the ear, and is called *conſonante*. But the couplets called *aſſonantes* would ſcarcely be taken for verſe by thoſe who ſhould not be informed thereof; and it is in this kind of poetry that their theatrical compoſitions both ancient and modern are written almoſt from beginning to end.

They begin generally with a ſucceſſion of real rhimes, either continued, or alternate, of an equal number of feet in the one inſtance, or in the other of an unequal number. After the firſt or ſecond ſcene the *aſſonantes* ſucceed, ſometimes after but a ſhort run of *conſonantes*, and continue with the intervention occaſionally of a few *conſonantes* to the end of the piece. Theſe *aſſonantes* are a continuance of phraſes with a cadence, ſubject to a certain meaſure. Each of them forms a verſe, but the *aſſonante* happens only in every other line, and does not require an actual rhime. It is ſufficient that the two laſt vowels of each ſecond line, ſhould be the ſame. An example will render this more comprehenſible, for which purpoſe I have ſelected at hazard the following from a Spaniſh piece:

Ya, Leonor eſtamos ſolas
Salyan per la boca aſu*era*
Tantos evidados del alma
Como me afligen y cer*can*;
Y antes que de mis peſares
Intente, amiga, dar cuent*a*
Es bien que ponderi aora
Con admiraſion diſcret*a*
Que ſiendo las dos amigas
Tanto, que enluza y eſtrech*a*, &c. &c.

At firſt ſight there appears no rhime in theſe ten lines, there is none in fact in the firſt, third, ſeventh, and ninth; neither is it requiſite there ſhould be. But the ſecond, fourth, ſixth, eighth, and tenth, are *aſſonantes*, becauſe each of them has for its two final vowels, an *e*, and an *a*.

A foreigner might frequent the Spaniſh theatre for ten years without ſuſpecting the exiſtence of *aſſonantes*, and when pointed out to him, he will yet find it difficult to follow the trace of them; but what he ſo hardly perceives, does not eſcape a Spaniard, even for an inſtant, however illiterate he may be. The ſecond verſe of a long courſe of aſſonantes is ſcarcely pronounced before he diſtinguiſhes the ſucceſſion of final vowels, which begins its empire; he is intent on their periodical return, and an actor would not with impunity attempt to ſupplant them by others; ſingular faculty which pertains to the delicate organization of the people of the ſouth, and the aptitude for declamation of the moſt vulgar and obſcure individuals. Theſe play a principal part at the theatre; their number and aſſiduous attendance form together one of the circumſtances which render its reform ſo difficult.

The theatre itſelf had as mean an original among the Spaniards as in France, and preſerves in many places its primitive form. Two parallel curtains, facing the audience, compoſed all the mechanic parts of the play-houſe, and there are places where this has not been improved upon. Behind the ſecond curtain is the prompter, with a candle in one hand, and his piece in the other, running from one ſide to the other to aſſiſt with his function thoſe actors who are in need of his help; but the theatres of Madrid of the

the preſent day, and in other great towns, the ſlips, changes of ſcenery and decorations, and the poſition of the prompter are much the ſame as at Paris. At firſt indeed one is ſomewhat vexed at hearing the prompter recite the parts, in almoſt as audible a tone of voice as the actors. To this defect, however, one ſoon becomes reconciled, and after long cuſtom it is ſcarcely noticed.

The play-houſe is divided into five parts *La Luneta* which anſwers to the *Parquet* of the French, and occupies part of the advanced part where the orcheſtra is placed with us. *Los Apoſentos*, which are two rows of boxes, in the upper part of the theatre, *La Cazuela*, a kind of ampitheatre on the ground floor. In this part the women of common rank only are admitted, covered with their veils, for the moſt part white; but therein creep as well thoſe charming intruders, who under the auſpices of love are anxious to cheat the vigilance of ſome jealous hawks, or ſome idlers of the *ton*, who are either too lazy to decorate themſelves, or deſirous of ſaving the expence of having their hair dreſt after the French faſhion. *Las gradas*, another ampitheatre above the boxes, on both ſides the houſe, where ſuch of the common people as are deſirous of ſitting at their eaſe reſort; and *El patio*, or the pit which contains none but the vulgar, with all their brutal manners, their ignorance, and their rags. This part of the audience, which has no ſeats, is always noiſy, and as difficult to be pleaſed, as if it had fair pretenſions.

The actors oftentimes addreſs theſe five claſſes of ſpectators under the title of *moſqueteros*, and are laviſh towards them of ſuch ſtale epithets as they deem calculated to ſecure their favour.

At Madrid, the actors are ſhared by two theatres, that of *La Cruz*, and that of *El Principe*, which for intereſt-ſake make common cauſe. There is, however, a rivalſhip as to ability kept up between them. Each has one of the players for a director, who every year diſſolves and re-compoſes his troop. It is then that the actors, who are the greateſt favorites with the public, expoſe themſelves for ſale, and cloſe with the moſt expert or moſt generous. It will be readily imagined, that the *gracioſos* are not forgot on theſe occaſions. The two directors make arrangements between themſelves for dividing them, for fear that too evident an inequality ſhould exiſt between the two troops, and each in conſequence ſhould equally ſuffer. As for the others, all the talents of a different deſcription are rather calculated for parade than the boards of Thalia. Spain has no idea of actors, in whom livelineſs is united with grace, and ſenſibility with elegance of delivery; in one word, of ſuch, as make the art of declamation the relative and rival of the fine arts. Their actors are but imitators, and while they ſervilely copy the models before their eyes, they have no conception of creating new ones in an imaginary but poſſible world, where every thing is noble without ceaſing to be true. Driving along the ſame track, unſkilful in delivery, as well as in their geſticulation, they exceed all bounds, exaggerate and diſfigure every thing, and inſtead of managing their powers to enable them to effect the perfect delineation of their character, they become exhauſted, and overſtep all limits. Their women where impaſſioned are furies, their heroes are coxcombs, their conſpirators raſcally malefactors, and their tyrants butchers.

They are far from poſſeſſing actors reſembling *Clairon*, *Kain*, *Garrick*, or *Siddons*. Indeed, in Spain, actors are no other than mercenaries, who are looked upon in ſociety but as ſo many mountebanks, who, while they amuſe us, are paid and tolerated, and afterwards are ſent about their buſineſs; whereas in other countries, where prejudice cauſes them, generally ſpeaking, to be ſtill more meanly eſteemed, the juſt admiration which ſome inſpire, raiſes them to the level of ſuperior artiſts, and men of genius.

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In their ancient comedies, if deficient in ſome reſpects, they yet afforded pleaſing examples of every virtue which can be taught a people; ſuch as loyalty, magnanimity, juſtice, and particularly benevolence; and although in the exaggeration of their repreſentations they may poſſeſs ſomething offenſive to taſte, they cannot be ſeen without implanting in the mind a diſpoſition to the exerciſe of theſe virtues. In the modern productions of Spain on the contrary, not only do they ſacrifice common decency; they preſent the audience with pictures of the moſt ſhocking irregularities, without any attempt to excite the due horror for ſuch offences. Conſpiracies of ſons againſt fathers, cruelty of huſbands, infidelities on the part of wives, and even the unpuniſhed villainies of malefactors; every thing is given by the actors, is ſuffered by the police, and applauded by the public. The conſequences of this ſufferance are, however, important, particularly in Spain, where the theatre is frequented by all claſſes of people. The populace even ſeem to be the principal object of their reſpects and adulation. They are ſovereign at the Spaniſh theatre. Their whims muſt be attended to, their perverſe taſte be flattered, and the tumultuous manner in which they expreſs their vulgar ſenſations, ſtifles the leſs noiſy voice of the more enlightened part of the audience; a ſingular, poſſibly an unique, circumſtance in a country where the people ſeem to be counted for nothing. May we not hence infer that there exiſts even amidſt the moſt obſcure claſſes of this people a ſort of ſpirit, a ſentiment of independence which is depreſſed by the continual ſway of arbitrary power, but which although it may keep under, it is yet unable totally to annihilate?

One would think that a theatre ſo looſe in its repreſentations, would keep from it thoſe perſons with whom age or their condition of life ſhould make decency a duty; but the foreigner ſees, and ſees with amazement, not only young ladies of a modeſt exterior, among the ſpectators of ſcenes which put delicacy to the bluſh, but even eccleſiaſtics, whoſe grave demeanour, and auſtere dreſs, form a ſingular contraſt with the leſſons of corruption, and the ſallies of libertiniſm expoſed before them. A pagan worthy formerly left the theatre at Rome leſt by his preſence he ſhould give a ſanction to the offenſive matter which was repreſented before him. Spaniſh prieſts intolerant with reſpect to leſs ſignificant objects are not equally ſcrupulous with regard to the intereſts of virtue. Apoſtles of religion, are they not then doctors of morality? Or are they ignorant that without morality religion is but error, and a ſcourge? Let them uſe their influence in reforming the theatre, and no one will take exception at their appearing at it.

As to its reform, a combination of circumſtances muſt take place in Spain before this can be expected. The ſovereign in the firſt place ſhould take an intereſt in it. Louis XIV. knew and patronized Moliere; he himſelf preſided at the brilliant entertainments which he gave, and in which a conſpicuous ſtation was aſſigned to the drama. Wherefore had the Spaniſh theatre ſome celebrity in the reigns of Philip III. and Philip IV., which in ſo many reſpects are conſidered as epochs of the decline of Spain? The reaſon was becauſe thoſe princes encouraged dramatic writers by their approbation, and rewards; it was becauſe they themſelves took pleaſure in theatrical exhibitions.

The kings of the new dynaſty, who in other matters have been ſo worthy of praiſe in departing from theſe ſad models, have not, as they did, carried their generative attention to the Spaniſh ſtage. Philip V. was of a pious diſpoſition, and loved a retired life. Ferdinand VI. was more attached to Italian arts than thoſe of Spain. Charles III., who ſeemed to hold out encouragement to other arts, who built La Caſerta, withdrew Herculaneum from its tomb, adopted the pencil of Mengs, and embelliſhed with ſeveral monuments of his taſte, the capital of Spain: Charles III. if he had not an averſion to

the ſtage, yet looked upon it with the moſt complete indifference; and Charles IV. has not yet been able to effect a regeneration, which is looked for with impatience by all who are attached to the drama. Their miniſter, Florida Blanca, appeared to patronize the theatre of the capital, but he rather participated in the taſte of the nation than felt diſpoſed to combat it.

The part of the police, which has relation to the theatres, is divided between the Corregidor, the members of the town-hall, and the Alcaldes de Corte. But the limits of their juriſdictions are ſo indiſtinctly marked, that from an uncertainty as to proper authorities, reſult the irregularities, which each of theſe inſpectors ſee, but which ſeparately neither has the faculty of preventing. Each of the three or four cenſors, before whom every freſh offence muſt be carried, is deſirous of removing from himſelf the odium of puniſhing, and conſequently relies for greater rigour on his colleagues; ſo that their collective voice for the ſuppreſſion of impure productions, equally offenſive to decency and good taſte, is difficult to be obtained. Add to which, theſe different examiners are frequently, themſelves, infected with the general contagion. Beſides they muſt poſſeſs more reſolution than what falls to their ſhare commonly, to ſnatch from the people the objects of their admiration, and not to yield to the repreſentations of the comedians, whoſe receipt would ſuffer from ſuch ſudden reforms.

Mr. Olavidi, whoſe active capacity was capable of embracing at once every part of adminiſtration, together with the police, had began to effect ſome ſalutary reforms in the decorations, dreſs and the art of declaiming; and this formed a charge on the part of his enemies againſt him at the time of his diſgrace.

Some ſamples were given in the reign of Charles III. of a reſolution at reform, which cannot be too much exerciſed for poliſhing the Spaniſh nation. The *autos ſacramentales* were definitively proſcribed; in theſe pieces, angels, ſaints, and the virtues perſonified, played each their different part, to the great ſcandal of religion and reaſon; whimſical compoſitions, in which Calderon particularly diſplayed all the capricious fecundity of his genius. Other pieces have alſo been interdicted, ſuch as *Los zelos de San Joſef*, and particularly the *Devil turned parſon*, dramas of a deſcription at once pious and farcical, in which innocence formerly perhaps found ſubject for edification.

A revolution is begun, even in the mechanical part of the theatre. At Madrid, at leaſt, decorations are better underſtood, the coſtume more appropriate; and one no longer ſees, (if ever ſuch was the caſe as is repreſented by the witty impoſtor who has treated the world with *Le voyage de Figaro*,) one no longer ſees *Oroſmanes in a dreſſing gown, and Zara in a fart in gale.* There are incongruities enough upon the Spaniſh boards, to render unneceſſary the inventions of a witty mind, to encreaſe the ridicule it merits. In Spain, as well as in Italy, actors of both ſexes, caſt their eyes over the boxes, and ſmile graciouſly on ſuch perſons as they may chance to know; and after a long ſpeech, when they receive applauſe, they never fail turning towards the ſpectators, teſtifying their gratitude by a profound obeiſance. Theſe are defects which relate to the comedians. I ſhall give a ſpecimen of others which pertain to the theatre itſelf.

Sometimes one or more of the actors entirely quits the ſtage, and takes his place in the boxes, whence a dialogue is kept up between him and the other performers. Nay, I know a piece, in which this extravagance is carried to a ſtill higher pitch. It is one of thoſe heroic comedies in which the Moors and Spaniards at war with each other are prodigal of eloquent outrage. One of the Mooriſh generals, unable to force his way towards his foes, to whom he has to make ſome threatening declaration, gallops into the pit, and thence harangues the Spaniards.

What ſhall I ſay of the ſtrange cuſtom of interweaving in their moſt ſerious comedies little pieces which have no relation to them whatever? I ſpeak of thoſe modern comedies which the Spaniards call *Saynetes* or *Intermes*, which are little pieces in one act, as ſimple in their plots as thoſe of the great pieces are complicated. The manners and character of the inferior claſſes of ſociety, and the petty intereſts which aſſociate or divide them, are therein repreſented in the moſt ſtriking manner. It is not an imitation but the thing itſelf. The ſpectator ſeems to be ſuddenly tranſported into a circle of Spaniards, where he is preſent at their amuſements and little cavillings. The manner of dreſs is ſo faithfully copied that he is ſometimes diſguſted. He ſees porters, flower-girls, and fiſh-women, who have all the geſtures, manner, and language of thoſe he has ſeen a hundred times in the ſtreet. The Spaniards do not ſeem to be aware that nature in her moſt ſimple garb may be embelliſhed without ceaſing to bear reſemblance, and that it is in this that the merit of the art of imitation conſiſts. The ſame obſervation may be made of the productions of their ſchool of painting. Look at the ſhepherds; the young peaſants of Velaſquez, nay even of Murillo, they are with reſpect to elegant painting, what the Saynetes are to the dramatic art, ſtriking but diſguſting by their too exact reſemblance. For theſe kind of characters the Spaniſh comedians have an admirable talent. Were they equally natural in every other they would be the firſt actors in Europe.

The *Saynetes* ſeem to have been invented to give relief to the attention of the audience fatigued by following the plot of the great piece through its inextricable labyrinth. Their moſt certain effect is that of making you loſe the clew; for it ſeldom happens that the real Spaniſh comedies are repreſented without interruption. There are ſcarcely any exceptions unleſs in new pieces, either original or tranſlated, in which the writers have felt the neceſſity of greater regularity. All the old ones are compoſed of three acts, called *Jornadas*. After the firſt act comes the Saynete, and the warrior or king, whom you have ſeen adorned with a helmet or a crown, has frequently a part in the little piece; and to ſpare himſelf the trouble of entirely changing his dreſs, ſometimes preſerves a part of his noble or royal garments. His ſaſh or buſkin ſtill appears beneath the dirty cloak of a man of the loweſt claſs, or the robe of an Alcalde.

When the Saynete is finiſhed, the principal piece is continued. After the ſecond act, there is a new interruption longer than the firſt; another Saynete begins, and is ſucceeded by a ſpecies of comic-opera, very ſhort, and called *Tonadilla*. A ſingle actreſs frequently performs the whole, ſhe relates, in ſinging, either an unintereſting adventure, or ſome trivial and frequently ſcandalous maxims of gallantry; ſhe then courts the applauſe of the audience as ſhe retires, and the third act of the great piece is permitted to begin.

What becomes of the illuſion and intereſt in the piece after theſe interruptions? This may be readily conceived, and it is not uncommon to ſee great part of the audience depart after the Tonadilla is finiſhed.

The Saynetes and Tonadillas are frequently the moſt attractive parts of theſe ſtrange medleys, and after a ſhort reſidence in Spain, it is eaſy to conceive the attraction which the Saynetes and Tonadillas muſt have for the people of the country. The manners, dreſs, adventures, and muſic, all are national; beſides, there are frequently preſented in theſe little pieces two ſpecies of beings peculiar to Spain, and whoſe manners and expreſſions are the objects of much mirth and pleaſantry, and ſometimes of imitation. Theſe are the *Majos* and the *Majas* on the one part, and the *Gitanos* and *Gitanas* on the other.

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The *Majos* are beaux of the lower claſs, or rather bullies, whoſe grave and frigid pompoſity is announced by their whole exterior. Their countenance, half concealed under a brown ſtuff bonnet, called *Montera*, is threatening, or full of inſolence, which ſeems to brave thoſe perſons whoſe ſtation ſhould awe them into reſpect, and which is not ſoftened even in the preſence of their miſtreſs. The officers of juſtice ſcarcely dare attack them. If provoked by any freedom, a ſymptom of diſpleaſure or a menacing look, a long rapier or a poniard, concealed under their wide cloak, announce that none muſt make free with them with impunity.

The *Majas*, on their parts, rival theſe caprices as much as their feeble means will permit; licentiouſneſs and effrontery appear in their attitudes, actions, and expreſſions; but if not very ſcrupulous about the manner in which voluptuouſneſs is diſplayed, in them may be ſeen the moſt ſeducing prieſteſſes that ever ſacrificed on the altars of Venus. Their charming tricks ſubject the ſenſes to a delirium that the wiſeſt can ſcarcely guard againſt, and which, if it inſpire not love, at leaſt gives promiſe of delight.

Perſons of the moſt indulgent nature are, however diſpleaſed that the Majos and Majas ſhould thus be brought upon the ſtage, and preſerve their attraction even in circles of good company. There are, among both ſexes, perſons of diſtinguiſhed rank, who ſeek their models among theſe heroes of the populace, who imitate their dreſs, manners, and accent, and are flattered when it is ſaid of them, *He is very like a Majo.—One would take her for a Maja.*

The *Gitanos* and *Gitanas* are a kind of gipſies who run about the country, lead a diſſolute life, tell fortunes, exerciſe all kinds of ſuſpicious profeſſions, have among themſelves a language, particular ſigns, in ſhort are dexterous knaves, who prey upon the unwary. This claſs of vagabonds, of which ſociety ought to be purged, has hitherto been tolerated; and characters of them are given upon the ſtage, amuſing by their originality; but the effect of this is, it renders vice familiar by concealing its deformity under a gay exterior. They are, if I may ſo ſay, the ſhepherds of the Spaniſh ſtage, certainly leſs inſipid, but at the ſame time leſs innocent than thoſe of ours. Their tricks, plots, and amorous intrigues, ſuited to their manners, are the ſubjects of ſeveral ſaynetes and tonadillas, and probably ſerve for leſſons to many a ſpectator.

Such is the modern Spaniſh ſtage. There are playhouſes at preſent in moſt of the principal towns of Spain. It may eaſily be conceived that their defects are even ſtill greater than thoſe of the capital. What then can we think of their ſtrolling-players, called *Comicos de la legua*, who travel from town to town with the rags which ſerve them for decorations, and perform in barns and ſtables? The heroes of Scarron are at leaſt entertaining, theſe excite nothing but diſguſt.

After death of Ferdinand VI., who had an Italian theatre at his court, there was for a long time no other than the national theatre. The Marquis de Grimaldi re-eſtabliſhed the Italian houſe at the court of Charles III., but it diſappeared upon his retirement. Towards the latter part of his reign, this prince permitted the formation of one in his capital, which ſtill ſubſiſts. The principal hoſpital at Madrid in the firſt inſtance was to pay the expence of maintaining it, and receive the profits, but turning out diſadvantageous, the management of it was given to the proprietors, principally grandees, who however have not been able to ſupport it without expence. Serious opera and farce is repreſented at this theatre; the decorations are handſome, the dreſſes ſplendidly rich, and the *corps de ballet* of a ſuperior deſcription. The Spaniſh actors having theſe models before them, appear to be pleaſed with them, nevertheleſs their repreſentations continue nearly the ſame. They may therefore be deemed incurable.

As for French theatres, they are at preſent, and for a long time back have been, entirely baniſhed from Spain. Towards the middle of the reign of Charles III. one was eſtabliſhed at Cadiz. The perſons concerned were ruined, and the plan given up. Since that time it was in contemplation to introduce one at Madrid. The ambaſſador Vauguyon ſeemed greatly intereſted in the ſcheme. The devotees reſiſted it, pretending that French plays were full of maxims of tolerance, and breathed too much of modern philoſophy. They reckoned no leſs than ſixteen heretical aſſertions in the ſingle piece of Pygmalion. In addition, the hoſpital, whoſe ſupport in a great degree depended upon the revenue which it received from the two national theatres, it was apprehended might ſuffer from its eſtabliſhment. The King liſtened to the conjoint remonſtrance of religion and charity againſt the meaſure, and the plan was laid aſide. Notwithſtanding this, the nation has become accuſtomed to the tranſlations of ſome of our plays, although the time muſt needs be looked upon as diſtant at which we may ſee a French theatre at Madrid.

CHAP. XIV.—*Of the Bull fights.*

AT the head of the amuſements of the Spaniſh nation muſt be placed one which belongs almoſt excluſively to itſelf, one too to which it is ſingularly attached, notwithſtanding its being obnoxious to the delicacy of the reſt of Europe; I mean the bull-fights.

Many Spaniards look upon them as one means of preſerving, in their nation, that energetic ſpirit by which they are characterized; yet it is difficult to comprehend what relation there can be to ſtrength and courage, in a ſpectacle where thoſe preſent are expoſed to no danger, and in which the actors prove by the rarity of accidents, that the hazard they themſelves run is not of a nature to excite much concern. I know very well that exaggeration frequently repreſents accidents as very common. It is true, thoſe cavaliers who are thrown from their horſes ſometimes receive very violent contuſions; but in the courſe of nine years that I was a ſpectator of theſe fights, I never knew of more than one *Torreador* who died of his wounds. However, a prieſt is always at hand, in a latticed box, furniſhed with holy oil in caſe of neceſſity. Yet were accidents as frequent as they are uncommon, they might familiarize the ſpectators with the effuſion of blood, and the ſufferings of their fellow-creatures, but could not habituate them to the fronting of danger, or endurance of pain. They might render them unfeeling and cruel, but never reſolute and brave. Another proof that this ſpectacle has no influence upon the minds of thoſe who frequent it is, that I have ſeen among the ſpectators children, young women, old people of both ſexes, men of every age, claſs, and character, in whom however theſe bloody entertainments did not tend to correct weakneſs or timidity, nor changed the mildneſs of their manners. Nay more, I have known foreigners of great benignity of nature, who at firſt ſuffered ſo much at the ſight of theſe bull fights as to change colour, yet who afterwards became much enamoured with the exhibition. Theſe diverſions are very expenſive, but very profitable to the undertakers. The price of the loweſt places is two, or four rials, according as they are expoſed to the ſun, or in the ſhade. The higheſt price is a hard dollar. After the value of the horſes and bulls, and the ſalary of the *Torreadores*, have been deducted from the money received, the remainder is commonly dedicated to pious uſes: at Madrid it forms a principal fund for the ſupport of the general hoſpital.

Bull-fights are moſtly given in ſummer, on account of the ſpectators who remain in the open air, and the animals being then more vigorous. Peculiar breeds are ſet apart

for this ſpecies of ſacrifice. A liſt is delivered to the ſpectators in which the number and the country of the victims are deſcribed, whoſe torture is intended for their amuſement. There are twenty benches round the circle, and that only which is moſt elevated is covered. The boxes are in the upper part of the edifice. In ſome cities, ſuch as Valladolid, where there is no particular place ſet apart for the combat, the principal ſquare is converted into a theatre for the purpoſe. The ſight of the people of every claſs aſſembled round the ſquare, expecting the ſignal for battle, and exhibiting in their countenances every ſign of joy and impatience, has in it ſomething intereſting.

The exhibition begins by a kind of proceſſion round the ſquare, in which the champions, as well on foot as on horſeback, who are to attack the fierce animal, make their appearance, dreſſed in all the elegance of Spaniſh coſtume; the *Picadores* in a round hat, half covered with a ſhort cloak, the ſleeves of which float in the air, are on horſeback, in white ſkin gaiters: thoſe who are on foot are dreſſed in the lighteſt and niceſt manner, and in pumps; both wear ſilk jackets of a bright colour, and trimmed with ribbands, with a ſcarf of a different colour, and their hair bound up in a large ſilk net, the fringes hanging from which deſcend as low as the reins. After the proceſſion is finiſhed two alguazils on horſeback gravely advance, in wigs and black robes, to the preſident of the fight (the governor or the corregidor) for an order to begin. The ſignal is immediately given. The animal, until then ſhut up in a kind of pen, the door of which opens into the circle, makes his appearance. The agents of Themis, who have no quarrel with him, prudently haſten their retreat, and their fright, generally ill ſeconded by the ſpeed of their horſes, is the prelude to the cruel amuſement which the ſpectators are about to enjoy.

In the mean time the bull is ſtunned with their cries and noiſy expreſſions of welcome. He has firſt to combat with the horſemen (*Picadores*), who wait for him armed with long lances. This exerciſe, which requires addreſs, ſtrength, and courage, has nothing in it degrading. Formerly the greateſt among the nobility did not diſdain to take a part in it; at preſent even ſome hidalgos ſolicit the honour of combating on horſeback.

The *Picadores* open the ſcene. The bull, without being provoked, frequently attacks them, upon which circumſtance, when it happens, the ſpectators conceive a great opinion of his courage. If, notwithſtanding the pointed ſteel which repels his attack, he again returns to the charge, cries are redoubled, and pleaſure then becomes enthuſiaſm; but if the animal be pacific, diſconcerted, and cowardly runs round the circle, avoiding his perſecutors, murmur and hiſſing reſound throughout the theatre. If nothing can rouſe his courage, he is judged unworthy of being tormented by men, and the repeated cries of *perros, perros*, bring on him new enemies. Great dogs are then let looſe upon him, who ſeize him by the neck and ears. The animal then aſſumes the uſe of his natural weapons. The dogs thrown into the air, fall ſtunned, ſometimes gored, upon the ground; they riſe again, renew the combat, and commonly end by overthrowing their adverſary, who then periſhes ignobly.

On the contrary, if he conduct himſelf properly, his career is more glorious, but of greater duration and more painful. The firſt act of the tragedy belongs to the combatants on horſeback; this is the moſt animated but the moſt bloody and diſguſting part of the whole.

The irritated animal braves the ſteel which makes deep wounds in his neck, falls furiouſly upon the innocent horſe who carries his enemy, gores his ſides, and overturns him with his rider, who in this caſe, upon the ground and diſarmed, is in imminent danger, until the combatants on foot, called *Chulos*, come to his aſſiſtance, and provoke the animal by ſhaking before him ſtuffs of different colours.

But

But it is not without danger to themſelves that they ſave the diſmounted horſeman. The bull oftentimes purſues them, and they then have need of their utmoſt agility. They eſcape by letting fall the piece of ſtuff which is their only weapon, and upon which the fury of the deceived animal is exhauſted. But it ſometimes happens that he is not thus to be impoſed upon, and the champion has no other reſource than leaping over the barrier ſix feet high, which forms the interior of the circle. In ſome places there are two barriers, and the intermediate ſpace forms a kind of circular gallery, behind which the *torreador* is in ſafety. The bull frequently leaps over the firſt incloſure, but uneaſy and ignorant what to do, he continues his courſe along the corridor, until an opening brings him anew into the arena; but when the barrier is ſingle, the bull makes efforts to leap it, which he ſometimes accompliſhes. The alarm of the neareſt ſpectators may eaſily be imagined; their precipitation in retiring, and crowding upon the upper benches, becomes more fatal to them than the fury of the animal, which ſtumbling at each ſtep upon the narrow and uneven ſpace, rather thinks of ſaving himſelf than ſatisfying his vengeance; and ſoon falls under the blows that are haſtily and repeatedly given him.

Except in theſe caſes, which are rare, he returns to the charge. His diſmounted adverſary having had time to recover himſelf, immediately mounts his horſe again, provided the latter be not too much wounded, and the attack is renewed; but the cavalier is frequently obliged to change his horſe. I have ſeen ſeven and eight horſes gored, or their bowels torn out, by the ſame bull, fall dead upon the field of battle. No words can then ſufficiently celebrate theſe acts of proweſs, which for ſeveral days become the favourite ſubjects of converſation. The horſes, aſtoniſhing examples of patience, courage, and docility, at times, before they die, preſent a ſight at which humanity ſhudders: they tread under feet the bloody entrails which fall from their lacerated ſides, and ſtill continue to obey the hand which guides them. Diſguſt then ſeizes ſuch of the ſpectators as poſſeſs any ſenſibility and embitters their pleaſure.

But a new act in the piece ſucceeds. When the bull is deemed ſufficiently tormented by the combatants on horſeback, theſe withdraw, and leave him to the champions on foot, called *banderilleros;* who meet the animal, and the moment he attacks them, ſtick into his neck, two by two, a kind of arrow, called a *banderilla*, terminated like a fiſh-hook, and ornamented with little ſtreamers of ſtained paper. The fury of the bull redoubles; he roars, and his vain efforts ſerve but to increaſe the anguiſh occaſioned by the dart lodged in him. This laſt torment gives a fine opportunity for a diſplay of the agility of his new adverſaries. The ſpectators at firſt tremble for their ſafety when they ſee them ſo near the horns of the animal; but their ſkilful hands inflict ſo ſure a blow, and they eſcape ſo nimbly from the danger, that after a few times their addreſs appears nothing more than a trifling epiſode in the tragedy of which the cataſtrophe is as follows:

When the vigour of the bull appears almoſt exhauſted, and his blood, flowing from twenty wounds, pours from his neck, and moiſtens his robuſt ſides, the fury of the people, then ſatiated, calls for another victim; the preſident then gives the ſignal for his death, which is announced by the ſound of drums and trumpets. The *Matador* advances and remains alone in the circle; in one hand he holds a long knife, in the other a kind of flag, which he waves before his adverſary. At firſt each ſtops and obſerves the other. The impetuoſity of the bull is ſeveral times avoided by the agility of the Matador, and the pleaſure of the ſpectators is rendered more lively by their ſuſpence. Sometimes the animal remains immoveable; he ſcrapes the ground with his feet and ſeems to meditate vengeance.

The bull in this ſituation, and the Matador who penetrates his deſign, and carefully obſerves his ſlighteſt motion, form a picture which an able pencil might not deem unworthy of delineation. The aſſembly notice this dumb ſcene in ſilence. At length the Matador gives the fatal blow; and if the animal immediately falls, the triumph of the conqueror is celebrated by a thouſand exclamations; but if the blow be not deciſive, if the bull ſurvive, the murmurs are not leſs numerous. The *Matador*, whoſe addreſs was about to be extolled to the ſkies, is looked upon only as a clumſy butcher. He inſtantly endeavours to recover from his diſgrace. His zeal then becomes blind fury, and his partiſans tremble for his life. At laſt he gives a better directed blow. The animal vomits ſtreams of blood, ſtruggles with death, ſtaggers, falls. His conqueror then is lifted to the ſkies by the applauſes of the people. Three mules covered with bells and banners terminate the piece, dragging the bull by thoſe horns which betrayed his valour from out of the circle, leaving behind the traces of his blood, and a ſlight remembrance of his exploits, ſoon effaced by the appearance of his ſucceſſor.

On each of the days dedicated to theſe feaſts, (at leaſt at Madrid,) ſix bulls are ſacrificed in the morning, and twelve in the afternoon. The three laſt of the animals are excluſively left to the *Matador*, who, deprived of any aſſiſtance from the *Picadores*, employs all his dexterity in varying the pleaſures of the ſpectators. He ſometimes allows an intrepid ſtranger, mounted upon another bull, to combat them; at others he turns a bear againſt them. The laſt bull is particularly devoted to the entertainment of the populace. The points of his horns are covered with a round caſe, which diminiſhes the effect of their ſtrokes. In this ſtate the bull, which is then called *Emboladó*, loſes the power of piercing and lacerating his adverſary. The ſpectators deſcend in crowds to torment him, each after his own way, and often pay for their cruel pleaſure by violent contuſions; but the creature always falls at laſt under the blows of the Matador.

The few ſpectators who do not partake the rage of the populace, regret that theſe wretched animals have not their lives, at leaſt ſaved, in recompence for their many tortures, and diſplay of courage. They would willingly aid them to eſcape from their perſecutors. In theſe the humane few, diſguſt ſucceeds to compaſſion, and wearineſs to diſguſt: the uniform ſucceſſion of ſimilar ſcenes throws a languor upon the amuſement which the ſpectacle promiſed at the beginning. It recals the opinion given by Pliny of the games of the circus: *nihil novum, nihil varium, nihil quod non ſemel ſpectaſſe ſufficiat* *.

But to the connoiſſeurs who have ſtudied the artifices of the bull, the reſources of his addreſs and fury, the different methods of tantalizing, deceiving, and tormenting him, (for in ſome provinces this is a ſtudy from youth to manhood,) to theſe no one ſcene reſembles another, and they pity undiſtinguiſhing obſervers who cannot perceive their variety.

A maſter worthy of compoſing a didactic poem on this matter, in appearance ſo barren, and notwithſtanding ſo famed, the famous *Torreador* Papehillo †, in 1796 publiſhed a treatiſe intitled *La Tauromaquia o arte de torrear á pii y a caballo*, a work uſeful for torreadors, whether profeſſional or amateurs, unique in its kind, and much ſought after by the public. Of this, it may be fairly ſaid that the author was a maſter of his ſubject.

* It contains nothing novel, no variation, nothing in ſhort which it is not ſufficient for ſatisfaction to have ſeen a ſingle time.

† He died in 1801, and it may be truly ſaid in the bed of honor. He fell the victim of a bull he was about to kill; the ſecond perſon who periſhed thus in the ſpace of thirty years.

In

In this purſuit, as in others, the ſpirit of party confers reputation; and diſputes or exaggerates ſucceſs. When I arrived at Madrid, the connoiſſeurs were divided between two famous *Matadores*, *Coſtilleres*, and *Romero*, as people might be in other countries, with reſpect to the merits of two celebrated actors. Each ſect was as enthuſiaſtic in its eulogiums and poſitive in deciſion as the *Gluckiſts* and *Picciniſts* perhaps were in France. It is difficult to believe that the art of killing a bull, which ſeems to be the excluſive privilege of a butcher, ſhould be gravely diſcuſſed, and extolled with tranſport, not only by the people, but by the beſt informed men, and women of the greateſt ſenſibility. Let us not, however, draw from this any concluſion unfavourable to the Spaniards. In ſpite of their ſingular attachment to bull-fights, in ſpite of the barbarous delight they take in ſeeing the blood of theſe innocent and courageous animals thus ſpilt for ſport, they are nevertheleſs ſuſceptible of good nature and humanity. On leaving theſe bloody paſtimes, they are not the leſs ſenſible to the comfort of a pleaſant home, to friendſhip, nor to love. Their courage does not on this account become more ferocious. When duels and aſſaſſination were more common, they were not more attached to this favourite amuſement than at preſent. Their manners are ſoftened from what they were anciently, without their paſſion for bull fights being diminiſhed. The day on which they are celebrated is a day of rejoicing for the whole diſtrict, for ten or twelve leagues round the place. The artiſt who can ſcarcely provide for his ſubſiſtence, has always a ſurplus to expend on this ſpectacle. And woe to the chaſtity of the poor girl, whoſe poverty ſhould exclude her from it; the man who ſhould pay for her admiſſion, would certainly place it in danger.

The Spaniſh government under Charles III. ſeemed to be aware of the inconvenience of this kind of phrenzy; the origin of diſorders and diſſipation, and highly prejudicial to agriculture by ſacrificing, in ſuch numbers, robuſt animals which might be employed in cultivation. This King had himſelf an averſion to bull fights, and was deſirous of weaning the nation, by degrees, from its attachment to them. His firſt miniſter, Florida Blanca, entered into his views. Under his adminiſtration the number of theſe entertainments, in the principal provincial towns, was diminiſhed. Even at Madrid none but weak animals were allowed for the ſport, and the people began to loſe their reliſh for them: but it was foreſeen that under Charles IV., they would reſume their original attraction.

There is in Spain another diverſion called *La Fieſta de Novillos*. In this young bulls not deſigned to meet with death, but to grow up for the fatal liſts, make trial of their budding horns, and are tantalized by a number of amateurs, who, like themſelves, are learners. The Prince and Princeſs of Aſturias, not daring to oppoſe the taſte of the old King Charles III., yet allowed themſelves to enjoy by ſtealth theſe parodies of the grand exhibition. From this it was argued that he would give theſe games his countenance. The beginning of the reign confirmed this conjecture. For a long time none of thoſe entertainments known by the name of *Fieſtas-reales* has been given by the court. The plaza-mayor, on ſuch occaſions, was the theatre of theſe exhibitions. The King and his family honoured the ſpectacle with their preſence. His military houſhold preſided to keep order. His halbardiers formed the inner circle of the theatre, and their long weapons were the only barrier oppoſed to the dangerous caprices of the bull. There were no more than one of theſe *Fieſtas-reales* in the former reign. They were conſidered as aboliſhed. But the coronation of the new King, brought them again into faſhion. Since that period the bull-fights have reſumed their former charm for the people. Licence is granted with leſs difficulty to ſuch towns as ſolicit leave to eſtabliſh them for the benefit of different objects of charity. Thoſe of the capital

capital have again become worthy of awakening that enthuſiaſm which began to flag As early as 1789 the bull-fights were more animated and bloody than had been known for a long time; more than once had one of theſe animals kept the field after ripping up all the horſes and wounding the greater part of the combatants.

There yet remains therefore two inſtitutions in Spain, to which the nation appears to be attached by fettering bonds; two inſtitutions which have more than one point of contact.

Both inſpire a ſort of horror at thoſe who defend them.

Both are barbarous, the one as it relates to manners, the other in its reſpect to opinion.

Neither ſhould meet with any other apologiſts than ſuch as Jack Ketch, yet virtues belonging to chriſtianity are both the motive and excuſe of each. By the one Faith arms itſelf with rigour againſt incredulity; in the charitably applied produce of the other the wretched find relief.

One throws impediments in the way of increaſing agriculture; the other is the chief obſtacle to the progreſs of philoſophy.

Do they require I ſhould name them? The one is the Inquiſition, the other the Bull-fights.

With theſe obſervations, I ſhall conclude what I had to obſerve of the manners and taſte of the Spaniſh nation. From this impartial view of the cuſtoms, pleaſures, and reſources of its capital it muſt be allowed, that where a foreigner has made himſelf maſter of the Spaniſh language, a matter eaſy enough in itſelf; where he is willing to introduce himſelf into the company of the natives of faſhion, who are very acceſſible; where the manners of the country, which are ſingular but not offenſive, have once become familiar, and provided he have no other favor to aſk at Madrid, than the ſmiles of ſome amiable fair one, he may paſs his time as agreeably in this capital as in any other of Europe.

VOLUME THE THIRD.

CHAP. I.—*Proſpect of Toledo.—The Alcazar.—Mozarabic Miſſal.—Of the Archbiſhop and his clergy.—An example of toleration.—Eccleſiaſtical juriſprudence with reſpect to marriage.—Cathedral and public edifices of Toledo.—Its environs.—Caſa del campo.—Villaviciosa.—San Fernando.—Loeches.—Toros de Guiſando.—Battuecas.—Avela.—Alcola.*

Before I conduct the reader towards the ſouth of Spain, I ſhall firſt lead him through different places worthy of attention at a ſhort diſtance from the capital, whither I was attracted by curioſity.

I ſhall begin with Toledo, a famous city, formerly the reſidence of the Mooriſh Kings, and at preſent the ſee of the primate of Spain. It is ſituated upon the right bank of the Tagus, twelve leagues from Madrid, and ſeven from Aranguez. On the road from Madrid, you paſs through two large towns, the lands about which are famous for their extreme fertility, and high ſtate of culture, called *Getafe*, and *Illeſcas*. But as is the caſe almoſt throughout Caſtile, they are deſtitute of trees.

In going to Toledo from Aranguez, you paſs through a far more pictureſque country. Beyond that reſidence the valley in which it is ſituated ſpreads, and the Tagus whoſe courſe is at times ſeen at a diſtance, and at others nigh, affords ſome pleaſing views. But during this courſe its banks are ſteep, and covered with ſtones; and the river itſelf which flows tranquilly by Aranguez, on its approaching Toledo and under its ancient walls, flows with the noiſe and rapidity of a torrent.

Before you enter Toledo, the Tagus is croſſed over a bridge of frightful height.

The idea which one is liable to form of this city from the pompous title of *imperial*, which it has enjoyed ever ſince it was taken from the Moors by Alphonſo VI., from its diſputing with Burgos for pre-eminence in the aſſembly of the *Cortes* of the kingdom of Caſtile, whoſe capital it formerly was, and whoſe ancient ſplendor is atteſted by its monuments, but ill agrees with its narrow, crooked, and deſerted ſtreets, its almoſt abſolute want of comfort, and deſtitution of induſtry. Madrid, which latterly has increaſed its population at the expence of its neighbours, has laid Toledo greatly under contribution. The appearance of its mouldering edifices gives it an air of wretchedneſs, with which, however, the interior of its houſes does not correſpond. One meets here with neatneſs in extreme, a property but rarely united to poverty. The inhabitants, above all things, are highly ſolicitious of excluding the rays of the ſun, and contrive to have coolneſs around them in the moſt violent heat of the Dog-days. At this period, if you pay them a viſit, you might deem yourſelf in the palace of ſleep. By three o'clock, for them, the ſun has ſet; the caſements and blinds are hermetrically cloſed, the floors repeatedly ſprinkled; with theſe, large ſheets are ſpread over their courts, and every thing concurs to form an illuſion, as to the warmth of the climate, and hour of the day.

It is true, theſe precautions are common to almoſt all the towns of Spain in the height of ſummer; but no where have they appeared to me ſo ſtriking as at Toledo. Until lately inventions for theſe indulgencies were almoſt the only labour to which its inhabitants were addicted. Within theſe few years they are rouzed from the *ſieſta*, to which they ſeemed perpetually condemned. Indolence and miſery were ſucceſsfully combatted by *Cardinal Lozenzana*, who, for more than twenty years, was their archbiſhop. The Alcazar, ancient palace of the Gothic Kings, was almoſt intirely rebuilt under Charles V.; but ever ſince the conflagration, by which it ſuffered in the beginning of the eighteenth century, it had continued in a ruinous condition. The archbiſhop put it in repair. He eſtabliſhed here ſilk looms, which afford employment to ſeven hundred poor people; an hoſpital for indigent women and old men; and formed a ſchool for two hundred children, who are brought up at his expence, and taught to draw.

Such is the employment to which this prelate dedicated his ſuperfluity; and as the ſimplicity of his life was truly apoſtolic, his wants were very circumſcribed, and his ſuperfluity immenſe. Notwithſtanding the preciſion with which he attended to his ſpiritual functions, he yet had leiſure to devote to literature. Before he occupied the ſee of Toledo, he had filled that of Mexico, and dicovered there a new collection of the letters of Fernand Cortes. This he publiſhed with notes on his return to Europe. He has alſo given to the world ſeveral learned works, particularly a new edition of the Mozarabic Miſſal. This is a collection of the offices of the church, as celebrated according to the Mozarabic ritual, adopted by the Chriſtians in the countries occupied by the Moors. Fallen into diſuſe, it was revived by Cardinal Ximenes, who founded a chapel at Toledo, in which divine ſervice is ſtill performed conformably to this ritual, as well as in one of the churches of Salamanca.

Madrid and Aranguez forming part of the diocefe of Toledo, the Cardinal, Archbifhop of this town, frequently appeared at court, even previous to his being nominated chief inquifitor. Madrid notwithftanding is the refidence of one of thofe grand vicars, who officiate for him in his epifcopal functions. Towards the clofe of my firft refidence in Spain, I had fome relation with this worthy acolyth of the prelate Lorenzana, the details and refult of which, in abridgement, the reader will pardon my prefenting, as they concur to prove, that fanaticifm, and particularly intolerance, are evils not altogether fo hopelefs of cure in Spain as is commonly believed; and that in modern times even the clergy of this kingdom produce individuals acceffible to reafon, and capable of compaffion for the weakneffes of humanity.

The agent of a foreign power, obliged by the laws of his country to profefs the proteftant religion, was captivated by an amiable Caftilian. An obftacle of magnitude oppofed their union in the invincible repugnance of the catholic family to an alliance with an heretic. The father himfelf comes to Madrid in order to fnatch his daughter from the danger of feduction, and drags her in tears to a diftance of thirty leagues from the capital. The lover follows his fteps, throws himfelf at his feet, and moves him to compaffion, but cannot fhake him from his purpofe. It is impoffible, fays the father, it is impoffible I fhould give my daughter to a perfon the enemy of God, and of my religion; but be converted, you fhall marry her.—The young heretic, however, entreated at leaft the permiffion of pleading his caufe before the tribunal of the church; hoping to find it lefs inexorable than that to which he had appealed in vain. The rigid Caftilian approved the expedient, without, however, reckoning upon its fuccefs.

The ftranger bears a gleam of hope away with him to Madrid. He feeks the grand vicar of the Archbifhop of Toledo, and thus addreffes him:

"You fee before you an unfortunate man, whom it is in your power to reftore to "happinefs. I doat on Dona N—, whom I wifh to marry; between us I am told there "is an infurmountable obftacle. I was born without the bofom of the Romifh church. "It were vain of you to exhort me to abjure my errors, nor could you be convinced of "the truth of fo fudden a converfion. And would that religion you profefs, receive any "glory from a fimilar homage? Leave to time, leave to the irreffiftible afcendancy of "Dona N—, the office of bringing me into what you deem, what I perhaps fome day "may deem, the way of falvation. The honourable employment which I fill is my only "means of fubfiftence. This employment is incompatible with a change of religion. "If I fail of obtaining the hand of Dona N—, I fhall die of defpair; if I cannot ob"tain her upon any other terms than thofe of renouncing my faith and confequently my "employment, both fhe and I muft die of want. You only, the miniſter of a God of "peace and goodnefs, you only can conciliate all; and furely as you have this power, "you will not refufe my entreaty."

Thefe arguments foftened the auſterity of the grand vicar. Firſt of all, faid he, I muſt have aſſurance that you are free to marry: how will you convince me? Next I muſt have proof that in your country, the proteſtant religion is ſo far national as to exclude the profeſſors of a different one from holding employment, and laſtly I muſt be ſatisfied by atteſtation, that you are not far eſtranged from the catholic church; and that you only require time, the influence of your future ſpouſe, and the inſtructions of our miniſters, to conſummate your converſion.

Upon this, the young ſtranger looks upon himſelf as ſecure of ſucceſs.—Eaſily can I give you theſe three aſſurances; but it muſt remain with you to appoint the organs through which you will receive them.—Let them be two public characters, in whom

you can conſide, and who may be worthy of our confidence. He names the Chargè des Affaires of France and that of the United States. They are accepted, and we invited to the grand vicar's. He received us, one after the other, and propoſed the three queſtions, to which we anſwer in the affirmative. We ſign this kind of act of public notoriety, which removes all the ſcruples of the grand vicar, the archbiſhop, and the orthodox family. The two lovers are united at the catholic altar, without either being obliged to abjure a creed. They remained faithful to their vow, as well as to the religion of their fathers; greatly intent upon promoting the happineſs, and very little about the converſion of each other. If the reading of theſe lines ſhould chance to occupy a leiſure moment in this happy family; upon recital of his alarms, his dangers, his ſucceſs, the triumph of love over intolerance, obtained by the interference of friendſhip; perhaps the huſband, the father, and the friend, may moiſten the page with a tear.

Such was the prelate of Toledo and his principal dependants twelve years ago, and ſuch are they at preſent. In this inſtance, they exhibited the firſt proof of toleration of this deſcription in Spain. Shortly after, another couple preciſely in the ſame ſituation, availed themſelves of this precedent to obtain a ſimilar reſult.

There are other caſes much leſs rare than thoſe which we have juſt cited, in which the grand vicar is called upon to interfere in a way much leſs edifying to manners. I allude to the cuſtom known in the country by the denomination of *Sacar por el vicario*, literally, *to redeem through the vicar*. Any girl above twelve years of age may oblige a youth, provided he be fourteen years old, to marry her, if ſhe can prove that he has anticipated the marriage rites, has promiſed his hand, or in any ſhape given her to underſtand that a union with her was his intention. Her proofs are exhibited before the vicar. If ſhe affirm the youth has had commerce with her and he agree to the charge, he cannot eſcape matrimony. If he denies it, the proof remains with her; and all that is neceſſary is for her to produce a neighbour to teſtify having ſeen him enter her houſe at any improper time. A ring, a jewel, a preſent, even a love-letter, notwithſtanding the word marriage may not appear therein, is proof ſufficient for claiming a huſband.

The intention of ſuch laws is not eaſily conceived. Does it proceed from a deſire of putting young men on their guard, even in the moſt tender age, againſt the ſeductions of the fair? Or have the civil and eccleſiaſtical authorities united in the deſign of increaſing the number of marriages at the hazard of making many that are bad?

However it may be, upon the plaintiff addreſſing herſelf to the vicar, the culprit is conducted to priſon, where he remains pending the ſuit. If the ſentence be, *there is cauſe for a wedding*, the priſoner is not liberated until after the celebration of the ſacrament of marriage. Frequently the deſire of obtaining one deſcription of liberty cauſes him to ſacrifice another; but it may readily be conceived that fetters thus put on will not be cheriſhed long.

There is another manner of employing the miniſtry of the eccleſiaſtical vicar, not leſs revolting to manners, but no ways ſo to love. Should a man become enamoured with a female under paternal reſtraint, who may return his paſſion and be unable to obtain conſent of the father; he applies to the vicar, communicates their mutual inclination, and points out the houſe in which he wiſhes the object of his affection to be received, preparatory to the celebration of their nuptials. After aſcertaining that their affection is mutual, the vicar ſends a commiſſary to withdraw the female from her father's roof, and conduct her to the place indicated by the lover, and when the caſe is thoroughly approved, it is thence ſhe is brought to receive the nuptial benediction.

Such in general throughout the Spaniſh monarchy is the eccleſiaſtical law in the inſtance of marriage; but in practice, the greater or leſs rigour with which theſe regulations are put in force depends much on the prudence and judgment of the miniſter of the church; and latterly laws have been enacted which, reſtoring to paternal authority a part of its influence over the diſpoſal of children, have had for object the prevention of the ſcandal which is cuſtomarily attached to marriages contracted without that reſpectable concurrence.

But let us return to Toledo, from which digreſſions have led us ſomewhat aſtray. Its cathedral is one of the moſt valuable ſacred edifices in Europe. During four hundred years it was conſecrated to Mahometan worſhip, recovered by Alphonſo VI. it preſerved the form of a moſque until the reign of St. Ferdinand, who gave it that under which it now appears. It diſplays all the ſumptuouſneſs of Gothic edifices, and in the reigns ſucceeding that of St. Ferdinand was enriched with every kind of decoration. Several of the chapels are worthy of attention for the tombs they contain. In the choir there are thoſe of four kings of Caſtile, who are commonly called *Reyes viejos*, old kings, and that of the Cardinal Mendoza, one of the moſt illuſtrious prelates who have held the ſee of Toledo.

In the chapel of the Virgin, Cardinal Portocarrero is interred. The epitaph on his tomb is of a ſtriking ſimplicity: *Hic jacet pulvis, cines, et nihil;* "Here lies duſt, aſhes, nothing."

In the chapel of St. James one pauſes, irreſiſtibly fixed before the tomb of Don Alvar de Luna, that illuſtrious and unfortunate favourite, abandoned to his fate on the ſcaffold by John II., whoſe blind partiality had raiſed him to the pinnacle of grandeur. If we give but common attention to the pompous inſcriptions with which this magnificent tomb and that of his wife are covered, one cannot refrain from philoſophical reflexions on the inſtability of the favour of kings.

The ſame chapel contains ſeveral other tombs deſerving notice; I ſhall mention none but that of the ten kings or queens of Caſtile, which are in the chapel called *delos reyes nuevos*, the moſt magnificently decorated of all.

The capitulary hall contains the portraits in ſucceſſion of all the archbiſhops of Toledo; a valuable collection on account of their portraits, dating from the revival of the art of painting in Spain the different gradations through which it has paſſed, being clearly diſtinguiſhable on compariſon; and becauſe ſince the time of Cardinal Ximenes they have all the merit of reſemblance.

In the cathedral are ſeveral other paintings worthy of attention. The veſtry contains, among others, one by Carlo Maratti, and one by Dominico Greco. The ceiling is painted in freſco, by Luca Giordano.

The cloiſter of the cathedral contains a painting by an author who deſerves to be better known, *Blas de Prado*. The moſt indifferent connoiſſeur cannot but be ſtruck by the correctneſs of the drawing, the excellence of the colouring, and eſpecially the ſoftneſs of expreſſion in the figures.

The cloiſter of the cathedral is ſpacious, and its proportions juſt. Bayeux and Maella, the two beſt painters of modern Spain, have traced on its walls the principal events of the life of St. Eugenius and St. Leocadia, the patrons of the cathedral, and of ſome other ſaints, famous at Toledo by their zeal for the chriſtian religion.

I might give a long enumeration of the ornaments, furniture and vaſes conſecrated to divine ſervice in this cathedral; a ſufficient idea may be formed of them by conſidering that Toledo is one of the richeſt ſees in Chriſtendom, that it has frequently been held by pious prelates, who would have thought it a reproach on themſelves had they made a pro-

a profane uſe of their opulence, and that it has had many opportunities to benefit by the munificence of the ſovereigns of Spain. To the curious is ſhewn a piece of ſculpture, in the very worſt taſte, and for what reaſon I know not, called the *Tranſparent*. It is a modern work, which diſfigures inſtead of embelliſhing the edifice. There, who will may admire a ſtone which bears the impreſſion of the feet of the Holy Virgin; ſhe placed them upon it when ſhe deſcended from heaven to bring to St. Ildefonſo the firſt chazuble or prieſt's cap; a miracle which a modern ſculptor has perpetuated in one of the chapels of the cathedral. The ſtone which bears the proof of the miracle, is expoſed to public view behind an iron railing, which prevents profanation without being an obſtacle to homage.

Beſides the cathedral, Toledo has five-and-twenty churches and a heap of convents and pious inſtitutions; ſeveral of which merit the attention of the traveller. The hoſpital of St. John the Baptiſt in particular, which, by the excellence of its proportions and the wiſdom of the plan, does honour to the good taſte of the founder Cardinal Tavera, who has there a magnificent tomb; the work of Alfonſo Berruguete, an able ſculptor, of the ſchool of Michael Angelo.

Toledo owes alſo to one of its prelates (Cardinal Mendoza,) its very handſome foundling hoſpital, the church of which contains ſix great paintings of the ſchool of Rubens.

Another aſylum for ſuffering humanity is an hoſpital for the inſane. There are two principal ones in Spain; one at Saragoſſa, the other at Toledo. I went ſeveral times to the latter, and was always ſurpriſed at the cleanneſs and regularity which I conſtantly found there; and, reflecting on ſeveral ſimilar inſtitutions kept in the ſame manner, I could not but admire how different this devotion, this Chriſtian charity, which in our days is thought to be treated with mildneſs when only loaded with ridicule, how different, I ſay, it renders men from themſelves, how powerfully withdraws them from their moſt habitual vices! On examining the charitable foundations of the Spaniards, the indolence and dirtineſs with which they are charged are no longer ſeen. Had religion conferred but this one benefit upon mankind, it would ſtill be worthy of admiration.

At Toledo there yet remains the wreck of the famous machine, invented by a Cremonian of the name of Juanelo, to raiſe the water of the Tagus into Toledo; and which for its ingenuity is worthy attention. Near the ruins of this machine there are others more ancient; part of an aqueduct erected to convey, on a level with the Alcazar, the water from a ſpring ſeven or eight leagues from Toledo. This is one of thoſe works equally uſeful and magnificent by which the Romans marked their reſidence in ſeveral places in Spain. On the outſide of the city as well, the ruins of a circus are viſible, and the traces of an old Roman road.

Thus the Romans, the Arabians, the Goths, and the Spaniards of the time of Charles V. by turns improved and embelliſhed Toledo. I cannot ſay as much for the modern Spaniards. Houſes out of repair, fine edifices going to ruin, few or no manufactures, a population reduced from two hundred thouſand to twenty-five thouſand perſons, and the moſt barren environs; ſuch is the picture which preſents itſelf to the traveller, attracted by the reputation of that famous city. Under the laſt reign, in addition to the attempts of its prelate to naturalize induſtry, ſome ſucceſsful efforts were made to recover it from the univerſal decay into which it had fallen. The blades of Toledo were formerly famous for their temper and ſolidity. Charles III. erected a very ſpacious edifice for making them; and the experiments already made ſeem to promiſe that the modern citizens of Toledo will not in this reſpect be long inferior to their predeceſſors.

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The inhabitants of this city would ſcarcely pardon me, were I to paſs over in ſilence their *Cigarrales*. Theſe are little country houſes, which I can compare to nothing they reſemble more than the *Baſtides* which ſurround the city of Marſeilles, except that they are leſs ornamented, and not ſo numerous. Thither in the afternoon, during the ſuffocating heat of the dog-days, the inhabitants go in ſearch of coolneſs and repoſe amid the ſhade of orchards. It is nevertheleſs impoſſible to reach them without exciting the ſweat of the brow, in croſſing ſome burnt and unſhaded meadow, or climbing over rugged hills. They are however the garden of Eden to the inhabitants of Toledo.

I now paſs on to other objects which, in the environs of, or at a ſhort diſtance from, the capital, are worthy the attention of the traveller.

At the *Caſa del campo*, an ancient pleaſure-houſe of the kings of Spain, only ſeparated from the new palace by the Mançanares, he will meet with large trees, ſome good paintings, and an equeſtrian ſtatue of Philip III.

Villa Viciosa, three great leagues from Madrid, is another royal palace to which Ferdinand VI. was attached, but which has not been frequented by his ſucceſſors.

San Fernando is a village three leagues from Madrid, for ſome time celebrated on account of a manufacture of cloths eſtabliſhed there. This has been removed to Guadalaxara, but the cloths ſtill preſerve their former name. The building in which was carried on the manufactory of San Fernando, formerly animated by induſtry, is now filled with the impure voices of ſuch wretched proſtitutes, as the police of Madrid delivers from vice to condign penitence. Formerly the *Abbeville* of Spain, it is now to Madrid what the *Saltpêtrierè* is to Paris.

At nearly the ſame diſtance from Madrid is a little village leſs known, but which appeared to me to merit attention; it is called *Loeches*. Here are buried ſome maſterpieces of which the Spaniards themſelves are ignorant. The church of a ſmall convent of nuns, founded by the Conde Duca d'Olivares, contains ſix capital paintings by Rubens, of the largeſt ſize and of magical effect. The principal is an allegorical painting of the triumph of religion; it is over the great altar, and unites all the beauties, and even defects, which characteriſe its author; richneſs of compoſition, brilliant colouring, ſtrength of expreſſion, and negligence of deſign. After this painting, I was moſt ſtruck with that in which Elias is repreſented ſtanding in the deſert, at the moment when an angel appears to comfort him.

Another object of curioſity, perhaps ſtill more unknown to the Spaniards themſelves, is found in the boſom of the mountains of Caſtile, four or five leagues from the Eſcurial: this is a monument which has cauſed much perplexity to ſome antiquarians, and which they know by the name of *Toros de Guiſando*. Guiſando is a convent of Hieronymites, placed upon the ſide of a chain of ſteep rocks, where, according to tradition, the ſons of Pompey were defeated by the party of Cæſar, and where the conquerors, to celebrate their triumph, ſacrificed to the gods an hundred bulls, and left the figures of four in ſtone on the place where they obtained their victory. Another tradition aſſerts theſe ſuppoſed bulls are elephants, and ſays, that inſtead of the triumph of the Romans, they were intended to preſerve the memory of the paſſage of the Carthaginians into the country, who, indeed, have left in ſeveral parts of Spain ſome rude figures of theſe animals. But, did they moſt reſemble bulls or elephants? This was a queſtion, which in company with three foreigners, as curious as myſelf, I attempted to decide. We found, in an encloſure of vines, overlooked by the convent of Guiſando, four enormous blocks of hard ſtone, reſembling granite; they appeared to me ſo unſhapen, that I was inclined to take them for the ſportive productions of nature, rather than the regular works of art. On examining them nearer, we diſcovered,

covered, or rather gueſſed, the intention of the ſculptor, but the efforts of his chiſſel have almoſt diſappeared beneath the ravage of time: we found no ſigns, either of the horns of a bull, or the trunk of an elephant. The form of the ears rather indicate the latter than the former animal; the contours of the rump and flanks are ſo much worn out of ſhape, that it is difficult to decide between the two. In ſhort, after an hour's obſervation, I left the difficulty as I found it. We were almoſt aſhamed of our fruitleſs journey; and painfully climbed up to the monaſtery, whence we looked down upon this hieroglyphical monument. We found that there exiſted no doubt of the manner in which it ought to be interpreted. The firſt tradition is preſerved upon a board, on which we read diſtinctly, the Latin inſcription cut in the ſides of one of the blocks, but which are now almoſt effaced. The principal inſcription is as follows: *Bellum Cæſaris et Patriæ ex magnâ parte confectum fuit; S. et Cn. Pompeii filiis hic in agro Baſtetano profligatis.* And another, *Exercitus victor hoſtibus effuſis.* They ſufficiently indicate that the monuments were deſigned to celebrate a victory over the ſons of Pompey. It remains to be determined, whether the ground upon which they are placed be the *Agrum Baſtetanum;* and to reconcile the hypotheſis with hiſtory, which places the defeat of Pompey's party in Andaluſia.

The worthy monks, jealous of the renown of their diſtrict, found an anſwer to all my objections, and that nothing might be wanting to my belief, they ſhewed me the caverns in which the ſons of Pompey found their death in ſeeking an aſylum after their defeat. Immediately afterwards they informed me, that theſe aſylums of the martyrs to liberty had fourteen hundred years later become thoſe of the martyrs of penitence; and we were obliged to hear the recital of the retreat of the founders of their order, to the caverns, the detail of their auſterities; the monks at the ſame time pointing out the traces of their ſteps.

The *Toros de Guiſando*, which many people at Madrid think imaginary, are frequently introduced into familiar converſation, to expreſs, in a burleſque manner, the courage of a man capable of facing the greateſt dangers; and in this ſenſe, they are uſed by one of the heros of Cervantes. When after my return, I ſaid I had ſeen and touched theſe famous bulls, I was looked upon as an extraordinary perſon. The wonder, however, ceaſed when I had deſcribed the enemy whom I had ſo reſolutelely braved.

Another diſtrict, farther from Madrid, makes a ſtill greater figure than the *Toros de Guiſando*, in the fabulous hiſtory of Spain; I mean the diſtrict of Battuecas, to which Monteſquieu alludes in his Perſian Letters, when he ſays, the Spaniards have in their kingdom diſtricts unknown to themſelves. According to ancient tradition, the religion, language and manners of Spain were unknown in the Battuecas. Extraordinary voices had been heard there from the neighbouring villages; the ſhepherds were afraid to approach it with their flocks. Was more neceſſary to ſtamp it as the retreat of dæmons or at leaſt of ſavages? Each related in his own manner the origin and particularities of the place. The Battuecas alſo furniſhed a ſubject for the wits of Spain; they introduced them into comedies and novels; and Moreri did not diſdain to give to theſe ridiculous ſtories a place in his dictionary.

Father Feijoo, an extremely well informed and intelligent monk, was one of the firſt who ſucceſsfully combated theſe abſurdities. The reſult of his reſearches, and the little tour I made to the Battuecas a ſhort time before my departure from Spain is, that they are two uncultivated valleys, ſcarcely a league in length, and ſo narrow and cloſely ſhut in, that it is difficult for the ſun to enter them in winter. This little diſtrict is remarkable for groupes of rocks oddly formed, for variety of trees, the meandering

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of the little river which waters the valleys, the excavations of the mountains by which they are formed, and the great numbers of all kinds of animals to which they ſerve as a retreat. The only human habitation, which merits attention, is the convent of the bare-footed Carmelites, whoſe cells are buried, as it were under the ſteep rocks, by which they are threatened, and the trees that give them ſhade. A traveller might make the tour of Europe, and not find a place more fit to become the aſylum of ſilence and peace. The diſtrict, which is almoſt inacceſſible, and not upon the road to any city, is ſcarcely ever frequented. The curious few who go thither, are looked upon as perſons of extravagant curioſity by the peaceful inhabitants, who cannot imagine the motive of their viſit. Their little diſtrict, which they ſeldom or never leave, is in the dioceſe of Coria, eight leagues from Cividad Rodrigo, and fourteen from Salamanca.

Avila and Alcala are two other towns in the neighbourhood of Madrid which a traveller is tempted to viſit, on account of their ancient fame.

Avila is ſituated on a hill twenty leagues from the capital. Its maſſy walls, its towers, its alcazar, and the dome of its old cathedral, afford rather an impoſing appearance at a diſtance. But it is impoſſible to exaggerate its wretchedneſs and depopulation. The deſertion of a number of territorial noblemen who are gone to ſettle elſewhere, and have left their lands to the management of their bailiffs, is the principal cauſe of this decay. In the beginning of the preſent century it had a manufactory of cloth, which did not ſucceed, and which the council of Caſtile in vain endeavoured to re-inſtate. However in 1789, two Engliſhmen, ſkilled in the manufacture of cotton, were enticed to Spain. They would have preferred Gallicia or Catalonia, in order to be nearer the ſea; but government was deſirous of having them in the neighbourhood of the court, and conſequently fixed them at Avila, in an edifice occupied ſome years before as a military ſchool. At firſt the inhabitants were greatly prepoſſeſſed againſt them, and threatened to ſtone them. Prieſts had implanted in the minds of theſe people a belief that theſe heretics fed on Catholic children. Thoſe in conſequence who did not perſecute yet ſhunned them. The peaſantry of the neighbourhood went round about to ſome diſtance in order to avoid paſſing by their houſe. By degrees theſe prejudices vaniſhed. The inhabitants began to be reconciled to the ſight of them, and ſoon they cauſed abundance to renew its benefits in the diſtrict. In 1792 more than ſeven hundred perſons were employed in their manufactory and its dependencies; and already not a beggar was to be met with in Avila. I ſaw theſe two perſons introduced to the King at Aranjuez. The reception which they met with ſufficiently made amends for the paltry perſecutions of fanaticiſm and ignorance to which they had been ſubjected. How much are thoſe governments to be pitied who, on introducing uſeful enterprizes, have to combat enemies of this deſcription! At a diſtance we are too much apt to judge from conſequences, and do not pay ſufficient attention to obſtacles; whence proceeds a ſeverity of deciſion which frequently borders on injuſtice *.

Alcala maintains its reputation better than Avila. The ſix leagues which ſeparate it from Madrid are rather pleaſant to travel over; after the firſt you arrive at the village of *Canillejos*, ſurrounded by orchards and gardens; a real phenomenon in the neighbourhood of Madrid. A league beyond you croſs the Henaris over a fine ſtone bridge, leaving *Leganis* on the right, one of the quarters of the regiment of Walloon guards, with *Vecalvaro*, where is conſtantly a detachment of the Spaniſh guards, and San Fernando.

* Theſe manufactories of Avila have changed their maſters, and gained nothing by the change. The direction of them has been given to the ſkilful mechaniſt Belancourt, whoſe active mind embraces too many objects to enable him to pay ſufficient attention to the minutiæ of a manufactory. This eſtabliſhment, which in its infancy promiſed largely, has almoſt dwindled to nothing.

On the other ſide of the Henaris, a beautiful ſlope begins; you perceive the town of *Torrejon*, beyond which is another ſtone bridge over the Tojote, a ſmall river which in ſummer is but a ſtreamlet. A little below it falls into the Henaris, which flows at the back of Alcala, between rugged and picturesque banks, ſufficiently well ſhaded with trees.

The Henaris, whence Alcala derives its ſurname, runs at ſome diſtance from the town at the foot of a chain of hills piled one above another. Alcala is ſtill ſurrounded by walls. It is diſproportionately long for its breadth, tolerably well built, and clean; and notwithſtanding it contains many churches and convents, and has no other employment for its inhabitants than that of cultivating moſt excellent fields for wheat, it does not diſguſt one, like many of the other towns of Caſtile, by a ſhocking diſplay of miſery. But that its univerſity had for its founder the famous Cardinal Ximenes, it ſcarcely deſerves mention. For the purpoſe of employing them on an edition of the celebrated Bible, known to theologians by the title of *Biblia complutenſis*, he cauſed ſeveral really learned men to eſtabliſh themſelves here, who have been ſucceeded up to our time by none but pedants.

CHAP. II.—*Road from Madrid to Saragoſſa.—Of Arragon and its Cortes.—Its new Canal.—Road to Lerida.*

ALCALA is on the road from Madrid to Saragoſſa, a conſiderable town, which I viſited in 1792, in order to have a view of the canal of Arragon, of which ſuch wonderful things had been told me. I ſhall conduct my readers thither, and give them an account of this canal, and the province it is intended to vivify.

Four leagues beyond Alcala you reach the intereſting town of Guadalaxara, ſituated on an eminence a ſhort diſtance beyond the Henaris. A fine road afterwards leads to the miſerable village of *Torrija*; thence to *Granjanejos*, the ſoil is ſtony and poor, and the road in the rainy ſeaſon rather bad. From the top of the hill on which this town is placed, you deſcend abruptly into a ſmall and very narrow valley, of highly pleaſing appearance and cultivated like a garden. It affords the moſt picturesque proſpect of all the road. But beyond *Grajanejos* you travel over a country mournful and bare, until you reach *Bujarraval*, a poor village ſurrounded by rocks, two leagues from Siguenza. It is ſtill worſe before you reach by a rapid and ſtony deſcent the bottom of a baſon, in which *Fuencaliente* is ſituated, on the borders of a ſtreamlet. This is a village belonging to the dutchy of Medina Celi, the principal ſpot of which fronts you on the brow of the circular hills which form the baſon. There, ſome pretty houſes, verdure, and plantations of flax, extended the whole length of the valley, agreeably ſtrike the eye. The traveller is afterwards continually delighted with meadows covered with cattle, and fields in high cultivation, as far as the hamlet of *Londares*, after which you meet at a league beyond with a new village built by the Biſhop of Siguenza. Thus we ſee that prelates in Spain are ever the chief benefactors of their diſtrict. A little farther at the ſummit of a mountain is an old caſtle, worthy of the beſt feudal times. Formerly it was doubtleſs a military ſtation, at preſent it is a peaceable appurtenance to the biſhopric of Siguenza.

From Londaris to Arcos the road is vexatiouſly full of riſes and falls, is very bad, and traverſes a horrid country, to the north-eaſt extremity of New Caſtile. Arcos is a miſerable but pleaſantly ſituated borough; it is the laſt in this province, and one of the thirteen belonging to the Duke of Medina Celi in this canton. For three leagues, the diſtance which ſeparates it from *Montreal*, another wretched borough, the firſt in Arra-

gon, the country is equally hideous, and the roads equally bad. The entrance into *Huerta*, however, claims as an exception a village belonging to a monaſtery of Bernardines, who ſpread comfort around them, a culture which does them credit, and ſhades a ſtriking difference noticeable in Spain between the poſſeſſions of the clergy and thoſe of the richeſt among the laity, but which is explained by the conſtant reſidence of the one, and the perpetual abſence of the other. This monaſtery, beſides, contains ſome remarkable tombs, among others thoſe of ſeveral French noblemen who came with the Conſtable du Gueſclin to the ſuccour of Henry de Tranſlamare. Should the traveller be deſirous of ſpending a few hours in examining theſe curioſities, he will have reaſon to be ſatisfied with his reception by the monks; and will find at their table a compenſation for the deſtitute ſtate of the diſtrict.

Montreal belongs to the houſe of Ariza, whoſe chief grounds are about a league beyond. The ancient caſtle pertaining to this houſe is on an eminence, at the foot of which is a pretty modern dwelling. The river Xalon, which we ſhall repeatedly meet with, runs cloſe to it, and embelliſhes and enlivens this little canton. It forms a caſcade, and has a bridge over it of a very pretty fancy. The whole of this landſcape might advantageouſly employ the pencil of the traveller.

On leaving Montreal you meet with a rapid deſcent, after paſſing which the road is conſtantly good to *Cetina*. From this village to Bubierca is two leagues of excellent road, between two ranges of hills; at the foot of that on the right the Xalon waters the valley, which is in a high ſtate of culture. Half way this river is croſſed over a bridge of ſtone, and you travel along its banks to *Bubierca*, a village moſt charmingly ſituated between the hills in the midſt of rocks.

Thence to *Calatayud*, you change horſes once at *Ateca*, a village ſurrounded by orchards amazingly fruitful. I adviſe the traveller who may paſs through Ateca to lay in proviſion of a wine called Cerinana, of a partridge-eye colour, its ſweet and agreeable flavour will make amends for the dark-coloured thick wine which will be preſented him in this part of Arragon, as far as to Saragoſſa, at which the ſtomach revolts, and which is certainly the moſt horrid beverage that ever poiſoned man.

On leaving Ateca the valley becomes more narrow, but continues beautiful and fertile; it is watered by the Xalon, the courſe of which between the hills follows their ſinuoſities. Throughout all Spain I never met with a more pleaſing diſtrict, none better cultivated than this vale from Cetina almoſt uninterruptedly to Calatayud. Trenches are cut communicating by a very ſimple proceſs with the Xalon, which conduct its beneficent waters to all the grounds in its neighbourhood. It is not in this charming valley that a traveller muſt ſeek for the indolence and unſkilfulneſs of Spaniards.

Half a league before you reach Calatayud a chain of rocks begin, piled one upon the other, and terminating in peaks, which rather diſfigure the beautiful landſcape. This town itſelf is in meaſure incruſted with them, the greater part being built at their foot, and commanding towards the ſouth a valley which ſpreads conſiderably near the town.

The produce of this rich valley conſiſts of corn, wine, pulſe, and an abundance of hemp; of which a great quantity is ſent into Old Caſtile, but much more to Bilboa and St. Sebaſtian. The cordage made of this hemp is uſed in the royal navy; and government employs commiſſaries of late years at Calatayud for the purpoſe of making purchaſes.

There is no oil made in this neighbouroood: however, at Calatayud there are twelve or thirteen ſoap manufactories; the barilla employed in which is brought from the eaſtern part of Arragon. There is a large demand for this ſoap throughout Caſtile.

Calatayud is ſtill not by much ſo conſiderable a town as it uſed to be. It ſcarcely contains fifteen hundred houſes; but in recompence it includes ten churches and fifteen convents, ſome of which are remarkable for their magnificence, and the extent of ground they are built upon. Calatayud and Tarraçona have a biſhop in common, who reſides at the latter of theſe towns. The former is contiguous to the ſpot where Bilbilis was ſituated, the birth-place of Martial.

Half a league before it arrives at Calatayud the Xalon receives the Xitoſa, which there loſes its name, although Lopez, the firſt geographer in modern Spain, makes it retain it till it diſembogues itſelf into the Ebro. I have thought myſelf juſtified in following the opinion of the inhabitants, and the ſtatement of the Abbé Pons.

The country is extremely uneven from Calatayud to the gates of *Freſno*, a town ſituated in a ſmiling well cultivated valley. After paſſing over ſome hills, the borough of *Almudia* lays before you, ſurrounded for a diſtance from its walls by olive-trees, vineyards, fig-trees, and plantations of hemp and Indian corn. Part of the eſtates of M. d'Aranda lay in this delightful country. It extends to more than a great league from Almudia; afterwards, however, you meet with nothing but heath and the moſt barren country until you come to the miſerable *Venta de la Romera*, and even to the neighbourhood of Saragoſſa.

At half a league beyond the laſt place but one for changing horſes (La Muela), this celebrated town is diſtinguiſhed in the midſt of a beautiful and extenſive plain on the banks of the Ebro.

I ſhall not enumerate the many ſacred edifices contained in Saragoſſa. The moſt remarkable are its two cathedrals. The one is the *church of La Seu*, of moſt majeſtic ſimplicity; the other, ſo famous in Spain, and even throughout the whole Catholic world, and to the deſcription of which Cardinal de Retz did not diſdain to dedicate ſeveral pages of his memoirs, is that of *Nueſtra Senora del Pilar*. It is a ſpacious and ſombre ſtructure, overloaded with ornament, without taſte, notwithſtanding it was rebuilt at the cloſe of the laſt century. But the miraculous image, around which there no longer remains a ſingle *ex voto*, nor one of the rich lamps of which the cardinal ſpeaks, is in a modern chapel, formed with ſuperb columns of marble of the Corinthian order. Arragoneſe devotion owed a homage of no leſs magnificence to that pious tradition, which ſtates the Holy Virgin to have appeared to St. James, in order to deſignate her pleaſure to have her image placed in a temple on this bank of the Ebro.

The vaults of the part of this church which has been rebuilt have recently been painted in freſco by the two brothers *Bayeu* and *Don Franciſco Goya*, all three natives of Saragoſſa.

In order to trace an additional feature in the hiſtory of human ſtupidity, you muſt deſcend into a cell of the church of *Santa Engracia*. There lay the aſhes of a crowd of martyrs ſacrificed by perſecuting Emperors. Lamps of ſilver are kept burning night and day in honour of them; but the ſmoke which proceeds from them does not ſoil. To prove this to the curious, the ceiling is pointed out, which, notwithſtanding it be low, is perfectly free from ſmoke. Such as ſtill have doubts are recommended to hold paper over the lamps. I made this experiment, and muſt confeſs that I ſaw or fancied the paper was not blackened. If I had had any doubts I ſhould have been careful of expreſſing them before theſe tolerant exhibitors of this miracle. I felt much inclined, however, to accoſt them in theſe terms:—What, ſhall the Almighty diſdain to work a miracle in order to clear the ſight of thoſe miniſters who oppoſe the French revolution, which by its recoil from the obſtacles raiſed againſt it may occaſion the overthrow of all Europe;

Europe; and yet, according to you, be diſpoſed to effect an inceſſant miracle in this obſcure cavern, a miracle too as uſeleſs in itſelf as your exiſtence?

I ſhall more willingly direct the attention of my readers to the new *Caſa de la Miſerecordia*, the building of which, adjoining to that of the old one, was completed in 1792, and which does no leſs honour to the intelligence than to the patriotiſm of Don Ramon Pignatelli. Deſtitute young people of both ſexes here meet with occupation and maintenance. They ſeparate ſilk, ſpin and comb wool, which is for this country a valuable production. They manufacture ſome coarſe woollen cloths, camlets, and ſilk. Out of ſeven hundred perſons contained in this edifice, half are employed by people in the town; for its wiſe founder (loſt ſome years ago to Arragon and Spain) was perſuaded, that without this expedient ſuch charitable inſtitutions would do more harm than benefit to induſtry. There are beſides ſeveral manufactories which furniſh regiments with cloathing.

Saragoſſa poſſeſſes an academy of fine arts, an inſignificant univerſity, and a patriotic ſociety. It encourages all branches of induſtry, particularly plantations of trees. It has eſtabliſhed ſchools of commerce and mathematics. Don Martin Goyecochea, one of its members, even eſtabliſhed a few years back a ſchool for deſign at his own individual expence. In one word, Saragoſſa is viſibly recovering from its long ſtupor, and is rendering itſelf worthy of being the capital of the beautiful kingdom of Arragon.

This kingdom was formerly much better peopled than at preſent. A vaſt number of its towns and villages have diſappeared. Its population is reduced to 614,000 perſons, of which Saragoſſa contains 42,600. Arragon has figured with glory in the hiſtory of free governments *. Notwithſtanding the crown was hereditary, each new king was obliged to have his title confirmed by the ſtates, and was not initiated to the ſovereignty before he had ſworn to maintain their rights. As a counterpoiſe to the authority of the ſovereign, they eſtabliſhed a magiſtrate called *Juſticia mayor*, who was accountable for his conduct to none but the ſtates. At the inauguration of the King, this magiſtrate remained ſeated with his hat on upon a high tribunal. The King appeared before him uncovered, and took oath, kneeling, to govern according to law. It was at this inſtant that the proclamation, ſo much cited formerly, was made: *Nos que valemos tanto como vos, os hacemos nueſtro rey ſenor con tal que guardeis nueſtros fueros y libertades; ſino no.*

The admiration which this impoſing ceremony is calculated to inſpire, is ſomewhat weakened upon learning that it was leſs before the people, or its repreſentatives, than an aſſembly of notables, (*ricos hombres,*) whoſe property was purchaſed with the ſword, that the King thus humbled himſelf. At firſt no more than twelve of the ancient families were admitted to the ceremony. By degrees the number was increaſed, and divided into high and inferior nobility. Among the ſtates the clergy was repreſented by prelates, and conſiderable towns ſent deputies. But labourers, artiſans, merchants, theſe were excluded from the rank of citizens; ſo that the people was very incompletely repreſented. This unſhapen aſſembly of the three orders made laws for the nation. The *Juſticia mayor* was the chief reſtraint upon uſurpation, whether on the part of the *Cortes* of Arragon, or that of the King. At length the prelates became devoted to the monarch; the deputies of the towns were not proof againſt bribery; the King thus by increaſing the number of his partiſans among theſe two orders, kept the nobility in curb, and became ſuch as he is at the preſent day, an abſolute monarch. Nevertheleſs there ſtill exiſts a ſhadow of the *Cortes* of Arragon. In 1792 Philip V., in a moment of diſtreſs, cauſed them to be aſſembled, as well as thoſe of Catalonia, which had not met together for two centuries. The young Queen, in the abſence of the King,

* See a work by *Adam* on American conſtitutions.

preſided,

preſided over the Cortes of Arragon. She found them little inclined to ſatisfy her requeſts, and with difficulty obtained a hundred thouſand crowns.

The ſucceſſes of Philip V., and the reſiſtance he met with from theſe two provinces, forfeited them the tranſient title they poſſeſſed to his favour. They were treated as conquered provinces, and of their Cortes no more than the wreck we have noticed elſewhere remained. Nevertheleſs the court of Madrid is not entirely free from the alarms inſpired by Arragon and Catalonia, whoſe inhabitants are prompt to take umbrage, and difficult to train to the yoke of deſpotiſm. Thoſe who are ſuppoſed to be deficient of devotion to the dynaſty of the Bourbons, are looked upon to lean towards the *Arragoneſe party*, that is to ſay, to the diſaffected ſide; and it is to this ſalutary apprehenſion that theſe two people are indebted for a treatment foreign to a conſtitution which no longer exiſts but in remembrance.

Arragon contains ſeveral towns, beſides Saragoſſa, deſerving of mention.

Hueſca, twelve leagues diſtant, is ſituated in a territory famous for its productions of all deſcriptions.

Tarraçona, thirteen great leagues from Saragoſſa, is ſurrounded by a country well planted with trees, and well watered.

Terruel, between Saragoſſa and Valencia. Its name brings to mind the adventures of two lovers, which have been made the ſubject of an extremely affecting Spaniſh drama, and whoſe dreſſes are preſerved, with a tender and pious reſpect, in one of the churches of this town.

The little river Turia, before it reaches Terruel, paſſes by Albarracin, traverſes and fertilizes a beautiful plain which ſpreads beyond the town.

Daroca, on one of the roads from Madrid to Saragoſſa, deſerves to be noticed. Situated at the foot of the mountains on the banks of the Xitoca, it is expoſed to frequent inundations. In order to guard againſt them, a ſubterranean channel, 780 yards long, has been dug to carry off the water. The banks of the Xitoca are exceedingly fruitful, and produce an abundance of hemp of an excellent quality.

The principal wealth of Arragon conſiſts in its oil, which is ſweet, full of ſubſtance, and has no unpleaſant taſte. In Saragoſſa itſelf are many olive mills. One of the moſt remarkable is that belonging to a real patriot, of whom we have before ſpoken, Don Martin Coyecochea. Such proprietors of olive grounds as have no mills, bring their olives to this. He has collected in his own houſe every thing for the uſe of the country people who come for his aſſiſtance. This eſtabliſhment affords a proof of what even a ſingle man can do who has the public good at heart, even in Spain. With pleaſure I remarked that the workmen employed about this mill, to the number of from twenty to two-and twenty, were all of them Frenchmen, who annually towards the cloſe of December migrate for the purpoſe from our ſouthern provinces. Even the country people agree that Spaniſh workmen would make but bad ſubſtitutes for theſe; neither were they leſs pleaſed with their decorous behaviour than with their ſuperior intelligence. There are, however, other mills at which Spaniſh workmen are employed near to *Monte Terrero*, a place in the neighbourhood of the town which has recently been levelled, and planted with vines and olive trees; there is one for the olives produced upon the lands appertaining to the canal of Arragon, and thoſe paid as contributions by the proprietors whoſe grounds it irrigates.

I ſhall now give ſome account of this canal, the chief object of my excurſion into Arragon.

It paſſes half a league diſtant from Saragoſſa, below *Monte Torrero*. There are its magazines, in which are depoſited grain, timber, iron work, and utenſils. Theſe edifices,

fices, remarkable for their ſolidity, contribute to the embelliſhment of the canal. There it was that I went on board a yacht to viſit ſix beautiful locks a great league below Saragoſſa. Half a league beyond theſe are four others, which receive the canal upon its iſſuing from a large baſon, on which you embark to aſcend it to its ſource.

Recommended to Don Ramon Pignatelli, the true creator of this canal, a maſterpiece of Spaniſh induſtry, I was enabled by his means to make this little water excurſion with convenience and advantage. At eight o'clock in the morning I embarked in a large boat under the management of Don Juan Payas, director of the canal. At noon we ſtopped at the moſt remarkable ſpot, where the canal runs in a channel of ſtone ſeven hundred and ten toiſes in length, over the courſe of the Xalon, which flows beneath this ſtupendous piece of maſonry. This part of the canal was the moſt expenſive of any. Its coſt is eſtimated at 13,000,000 of rials (nearly £150,000 ſterling). We ſlept at *Canaliſta*, another ſtation worthy of remark. The old canal from the Xalon, cut for the purpoſe of irrigation, proceeding from the weſt, takes its courſe here over an aqueduct of ſtone built over the canals, and afterwards directs its courſe eaſtward towards *Lucena*.

The next day we admired the works of *Gallar*, a village on a naked ſlope on the banks of the Ebro, which hereabouts approaches very nigh the canal. The inequality and ruggedneſs of the ground which it has here to paſs over required ſolid and very expenſive works. A little lower down, the canal runs in a channel of ſtone cut through very high hills. This work is not new. Under Charles V., the firſt author of the canal of Arragon in this part, it ran under ground, all therefore that was neceſſary at the preſent time was to open it anew.

Half a league beyond Gallar you perceive the Ebro, and, in the diſtance on the other ſide of its right bank the village of Tauſte, which gives its name to a canal entirely modern. For that which we are at preſent paſſing over is, properly ſpeaking, the imperial canal began by Charles V., but which, interrupted by the diſtractions of his reſtleſs ambition, he was obliged to diſcontinue, and which remained unregarded till the year 1770. Since then it has made but ſlow progreſs, and perhaps would not have made any, but for the rare perſeverance of Don Ramon Pignatelli. As you approach the mouth (*El Bocal*,) that is to ſay, the place where the canal begins, it is divided in two by a ſmall iſland. On the right, is the old canal of Charles V., on the left, that which has been lately made. Shortly afterwards we paſs under the bridge of Formigalis, near which the latter canal increaſes its breadth, and forms a ſuperb ſheet of water. Under this bridge, of a ſingle arch, is the firſt place at which the canal diſembogues itſelf, (*alminara de diſagua.*)

There are to be five bridges over this canal between Gallar and El Bocal. Built at firſt of wood, they have been or will be ſucceſſively conſtructed of brick.

Two leagues from El Bocal, after paſſing the old caſtle of *Mallen*, we enter the kingdom of Navarre. Thence the canal commands a vaſt proſpect over a plain covered with pulſe and maize. Below Formigalis we find the bridge of *Valverdo*, the confines of Arragon on that ſide. At length, we reach the Bocal, which is a quarter of a league beyond Formigalis.

There the Ebro, through a cut a hundred and eighteen toiſes long, and ſeventeen broad, enters the bed of the canal by eleven mouths, which are never opened all at a time, and over which the new palace is built. In front of one of the ſides of this edifice is the extenſive ſheet of water formed from the Ebro, and on the right, the caſcade.

The firſt ſtory of the palace comprizes a ſuite of apartments for the governor of the eſtabliſhment, which were finiſhed in 1787. The other buildings adjoining are warehouſes for wood, planks, and ironwork. The tavern, which is ſpacious, is well managed

managed by a landlord from Thoulouſe; the chapel and the old caſtle are a quarter of a league diſtant from the bridge of Formigalis.

After having minutely examined this canal; after noticing how well every thing has been foreſeen, how well every thing has been planned and executed; and joining to this grand undertaking many other monuments and eſtabliſhments diſperſed over modern Spain; it is impoſſible to retain any longer thoſe unfavourable prepoſſeſſions againſt its inhabitants, which exiſt in the minds of a great part of the population of Europe, or not to allow, that, if they are tardy in their meaſures, they yet complete many things with intelligence, ſolidity, and even with magnificence.

The canal of Arragon ſeems to re-unite all theſe qualities, and its utility is already atteſted by ſeventeen years experience. In the month of Auguſt 1792, it might produce 2,000,000 of rials, more than half of which was conſecrated to the payment of perſons employed, and the remainder was ſet apart for the continuation of the works. The ſources of this revenue are the produce of the land for ſeveral toiſes in breadth on both its ſides, and the contributions in kind paid by all the land it irrigates. Thoſe previouſly cultivated pay a fifth of their crop; the lands newly broke up for tillage a ſixth; and vineyards, olive-grounds and orchards, an eighth or ninth part. At the epoch adverted to, one hundred thouſand acres were watered by the canal; and eſtates which a few years before ſold for from 100 to 150 rials per acre, had riſen to the value of from 4 to 5000; can a better apology be poſſibly adduced for canals, and for that of Arragon in particular? After this, will it be credited that funds could be wanting for its completion? Yet in 1793 ſuch was the caſe. It ſtopped at *Cartuxa baxa*, a great league below Saragoſſa, and with regret I learn, that ſince then it has made no progreſs; that the managers have been entirely deſtitute of funds for the continuance of the works, and that thoſe which were finiſhed were ſuffered to fall to decay. Theſe are the reſults of the laſt war. Such is the fruit of intrigue and envy!

This canal is to have in all thirty-four locks. From Tudela to Saragoſſa none are neceſſary; but from the laſt town to Saſtago, where the canal is to join the Ebro again, the elevation of the ground renders them indiſpenſable. In 1793 no more than ſix were finiſhed. The expence of the remaining twenty-eight ought not to create diſmay. Thoſe already made had coſt no more than 200,000 rials each. The reſidue therefore would not require more than 6,000,000 (about £68,000.)

For the advantage of the canal there have been contrived,

1ſt. Sluices (*almenares de deſagua*,) for taking off the ſuperfluous waters.

2dly, Cuts for irrigating the neighbouring land (*almenaras de riego*.)

3dly, Small bridges, or *alcantarillas*, to carry it over ravines. In ſome places the neighbouring roads paſs under the canal.

4thly, Superficial currents (*corruntes ſuperficiales*,) by means of which the land floods are conducted over the ſurface of the canal, after depoſiting in a ſort of well the ſtones, mud, and gravel which they ſweep along with them.

When deſirous of cleanſing the canal, it can be left dry in four or five hours. At the ſame inſtant all its ſluices are opened, and the waters by channels more or leſs ſloping empty themſelves into the Ebro.

The drain from this river below Tudela does not perceptibly leſſen its ſtream; for there are more precautions neceſſary againſt its ſuperabundance, than a ſcarcity of its waters; but every thing is ſo excellently combined, that the quantity requiſite for the canal is computed to the moſt exact nicety.

Spain has no eſtabliſhment that promiſes greater utility. For a long time the courſe of the Ebro had been an inſufficient means of communication for the three provinces through

through which it flows, Navarre, Arragon, and Catalonia. The canal which is to compenſate for its inſufficiency will run twenty-ſix great leagues from Tudela to Saſtago. At the latter place the Ebro begins to be navigable, at leaſt requiring little to make it ſo, as far as Tortoſa, whence it is navigable to the ſea. Along this river is another canal eleven leagues in length, which was finiſhed even before the time of Charles V. It is that of *Tauſto*. Intended ſolely for irrigation, it has become neglected, and is conſequently of very little ſervice. The directors of the new canal engaged to re-eſtabliſh the old; but until the new cut be made to ſupply both canals, they have ſuffered the old one to remain, which is about half a league higher up.

The Ebro itſelf, however, is not entirely uſeleſs to the countries through which it flows. But navigable for no more than four or five months of the year, from Saragoſſa to the ſea; it is but partially beneficial to navigation, and cannot be employed to water the meadows. The new canal anſwers both theſe purpoſes. Its leaſt depth is nine feet, and the largeſt veſſels employed upon it are of 135 tons burthen.

El Bocal is very near to Navarre. The village of *Fontellas* is ſituated on an eminence nigh the canal. You paſs through it to go to Tudela, two leagues diſtant, which is the firſt town on that ſide of the kingdom of Navarre.

On leaving Fontellas you meet with a ſpecimen of the ſuperb roads with which this part of Spain, owing to the care of its viceroy Count Gages, was furniſhed before any other; roads which paſs from one frontier to the other of Navarre. It is known that one of the roads which lead from France to Spain is that from the French or lower Navarre to the upper. This journey is begun on horſeback, or on a mule, at St. Jean Pied de Port, a ſmall town, ſituated at the foot of that very ſteep ridge of the Pyrenees called *Altovizar*; it takes two or three hours to clear it and reach *Roncevalles*, ſituated at the bottom of the oppoſite ſide of the Pyrenees. Roncevalles, a name famous in romance and fabulous hiſtory, is at preſent no more than a village, containing ſome tolerable inns and a monaſtery of regular canons.

Thence to Pampeluna is ſix leagues of excellent road through deep vallies, and rather lofty mountains, both partly covered with wood. On the way you have the valley of Baſtan on the left, which up to the preſent day has been the theatre of continual quarrels between the borderers. After traverſing the valley it may readily be conſidered a proper apple of diſcord. It is five or ſix leagues in diameter. The Bidaſſoa has its ſource therein; it does not produce much corn, but abounds in fruit and maize, and its meadows are covered with ſheep.

Pampeluna, the capital of Spaniſh Navarre, and reſidence of its governor and viceroy, is built on an eminence on the banks of the little river Arga. It contains but three thouſand houſes at preſent; it is protected by a citadel and a fort, and in 1795 preparations were made there to reſiſt our victorious arms. The ſix leagues from Pampeluna to Tafala traverſes a rich and well peopled country. The diſtance from Tafala to Tudela is eleven leagues, the ſix laſt of which is alſo through a well cultivated country, if the Bardena del Rey be excepted, an uncultivated diſtrict, but which furniſhes excellent paſtures.

Tudela, a great league from the frontiers of Arragon, is a middling-ſized town, tolerably well built. At the extremity of the wide ſtreet, which interſects it lengthways, is a ſtone bridge over the Ebro; when you have croſſed this bridge, the ſuperb road of ſeventeen leagues to Pampeluna begins. The territory of Tudela, known only for the production of its red wine, is adapted to all ſpecies of cultivation; but the miſconceived cupidity of the rich proprietors to whom it belongs, has conſecrated it to the ſole

culture of the vine. *Peralta*, which furniſhes a wine of ſome celebrity, is a few leagues diſtant from Tudela, pretty near the road to Pampeluna.

The kingdom of Navarre, taken by Ferdinand the Catholic from John D'Albret, forms a diſtinct province, the ſame as Biſcay, which preſerves its cuſtoms, privileges, and ſeparate tribunal, and is looked upon in many reſpects as beyond the frontiers. The greater part of foreign merchandize is admitted free of duty, not being examined until its arrival at *Agreda*, the firſt cuſtom-houſe of Caſtile towards Navarre.

But let us re-enter Arragon, and leave its canal, which, even as it is, deſerves the admiration of all perſons converſant in uſeful and ſolid works, and of every friend to the public good. Were it never to be completed, enough has been done to immortalize the name of Don Ramon Pignatelli, who, in deſpite of the double title he poſſeſſed to be inactive, that of his rank in the church, and that of his illuſtrious origin; in deſpite of intrigue, and the coolneſs of the court, was one of the moſt diligent, moſt enlightened, and moſt eſtimable men in Spain *.

Saragoſſa is on one of the roads from Madrid to Barcelona; but this road is one of the worſt in Spain, and gives no very favourable idea either of Arragon or Catalonia. In particular, nothing can be imagined more deſtitute or hideous, than a great part of the country you paſs over from Villafranca, at which place you loſe ſight of Saragoſſa, to two leagues beyond the wretched borough of *Fraga*, ſituated on the banks of the Cinca, and at the foot of a ſteep and almoſt impaſſable mountain, which you have to croſs before you reach Lerida. Paſſing Villafranca you arrive at the *Ventu de San Lucia*, the moſt diſguſting inn in Spain. Thence paſſing through the borough of *Bujaraloz*, the miſerable village of *Candaſnos* preſents itſelf, ſeparated from Fraga by five leagues of the moſt frightful country. Catalonia begins on the other ſide of Fraga. Lerida is at about the ſame diſtance; but in another part I ſhall ſpeak of this important town, and the twenty leagues of road between it and Barcelona.

In the interim, let us proceed to the ſouth of Spain, beginning with the elegant reſidence of Aranjuez.

CHAP. III.—*Deſcription of Aranjuez.*

THE road from Madrid to Aranjuez is one of the fineſt, and kept in the beſt order of any in Europe. You ſee before you the broad and long bridge leading to Toledo, a maſſive ſtructure, whoſe parapets are loaded with ill-choſen ornaments. When the Manzanares is very low the bridge may be avoided, (which ſaves a quarter of a league,) by croſſing, over a ſmall bridge, the canal intended to join this ſmall river with the Tagus, and which, begun under the adminiſtration of M. de Grimaldi, was given up for want of funds, after it had proceeded about three leagues, and for want of ſuch perſons as Don Ramon Pignatelli, worthies very rare in Spain. The only revenue derived from it is the produce of a few mills; and this is abſorbed by the repair of bridges, ſluices, and the ſalaries of perſons employed. For in almoſt every part, ſcarcely is an

* After the death of Don Ramon Pignatelli, the Count de Soſtago, individually intereſted in the canal of Arragon, was nominated *ad interim* to the ſuperintendance thereof. This office was afterwards delegated to the directors-general of bridges at Madrid. It is not likely that, under the management of a body diſtant from the ſpot, and whoſe attention is occupied by ſo many other concerns, the canal ſhould attain perfection. At preſent it is employed either for navigation or irrigation, only from Tudela to a league beyond Saragoſſa.

eſtabliſh-

eſtabliſhment begun, before the expences of ſupporting it are as conſiderable as if it were completed.

The Manzanares is fordable a little beyond, and on the other ſide begins the fine road of Aranjuez, whence are ſeen different groups of olive-trees. After having journeyed ſix leagues, on a very ſtraight and even road, you deſcend to the charming valley of Aranjuez. The Xarama, which you croſs over a very fine ſtone bridge, runs at the foot of the hills, by which the river is formed, to the north. As ſoon as you arrive in this valley, the dry and naked plains of Caſtile diſappear, and you perceive a change both of ſoil and climate; here you travel in the ſhade of lofty trees, and diſtinguiſh the noiſe of caſcades and the murmur of rivulets. The meadows are enamelled with flowers, and the paſtures diſplay the moſt lively and variegated colours. Vegetation appears in all its richneſs, and beſpeaks the neighbouring river, which, with its beneficent waters, fertiliſes and vivifies the landſcape. The Tagus, which enters the valley at the eaſt end, runs in meanders for two leagues, and, after having reflected the images of the moſt beautiful plantations, joins the Xarama.

The embelliſhments of Aranjuez are modern. The firſt Spaniſh monarch who reſided there for any conſiderable length of time was Charles V. He began to build the palace which his ſucceſſors inhabit, and to which Ferdinand VI. and Charles III. have each added a wing. In this new form, it has more the appearance of a very agreeable country-houſe than a royal manſion. The Tagus, which runs in a right line to the eaſtern front, glides by the parterre, and forms almoſt under the windows an artificial caſcade.

A ſmall arm of the river eſcapes at the caſcade, and ſo cloſely waſhes the walls of the palace, that from the terrace the monarch may take the diverſion of fiſhing. This arm afterwards rejoins the river, and thus forms a pleaſant iſland, which is a vaſt garden of an irregular form, in which there is conſtant ſhade and freſh air at all times. Wandering amid the labyrinth of the winding walks, one enjoys the luxury and calm of nature, and may imagine one's ſelf far from courts, in the midſt of rural ſolitude. Lofty trees, high walls of verdure, and fountains ſimply adorned, theſe are the ornaments of the *garden of the iſle*. Its magnificence increaſed would but diminiſh its charms. Charles V. and Philip II. would find ſome difficulty in recognizing Aranjuez, which by the attention and improvements of the two laſt kings has been rendered one of the moſt pleaſing palaces in Europe. The principal alleys, that eſpecially of the *Calle de la Reyna*, which is the favourite walk of the court, were planted long before their time. The height of the trees, their enormous trunks and thick foliage, atteſt their antiquity and the fertility of the ſoil in which they have flouriſhed for many centuries. But theſe are not the only ornaments of the valley of Aranjuez. Under Ferdinand VI. this palace conſiſted of little elſe than the caſtle. A few poor houſes ſcattered over uneven and rugged ground at ſome diſtance from the royal habitation, ſerved to lodge ambaſſadors and the nobles and gentry who followed the court. Theſe huts have been replaced by regular and elegantly ſimple buildings. The principal ſtreets are ſhaded by two rows of trees, watered by a running ſtream, they are all built in a ſtraight line and very wide, perhaps too wide for the height of the houſes and the heat of the climate. The plan, after which the new village of Aranjuez is built, was given by the Marquis of Grimaldi, who, before he became ambaſſador to France and firſt miniſter to His Catholic Majeſty, had reſided at the Hague as his repreſentative, whence he gathered the idea of eſtabliſhing a Dutch town in the centre of Caſtile.

The village is ſeparated from the caſtle by a large but irregular ſquare, adorned by a fountain. Charles III. conſtructed a portico, which almoſt entirely proceeds from

the end of one of the principal ſtreets, and forming a part of the incloſure of the ſquare, joins the buildings belonging to the palace.

It would require too much time to conduct the reader through all the fine plantations of Aranjuez; I ſhall ſpeak only of the principal. Arriving from Madrid we croſs a circular ſpace called *Las doce calles*, from twelve allies which there terminate. One of the allies leads to the entrance of *Las Huertas*, a large orchard, in which we cannot but admire the aſtoniſhing fertility of the ſoil of Aranjuez. If the traveller wiſhes to ſee more rich cultivation, and on a larger ſcale, he muſt take the road to Toledo and croſs the *Campo Flamenco*, which undoubtedly takes its name from the reſemblance it bears to the delightful fields of Flanders. The *Cortijo* is alſo worthy of his particular attention. This is a large expanſe cloſed by a latticed barrier, within which the ſoil, cultivated with particular care, uſuriouſly repays the labours of the huſbandman, and the attention of the King, who has cauſed it to be planted with vine-ſuckers from different parts of his kingdom.

Laſtly, the *Huerta de Valentia* preſents the traveller with various new and ſucceſsful modes of cultivation, and gives him a pleaſing idea of that kingdom. Beſides fields of flax, vineyards, and artificial meadows, there are mulberry plantations, and a building conſecrated to the produce of ſilk-worms. But the *Calle de la Reyna*, which forms the angle of the plantations of Aranjuez, is that which is moſt known and remarkable in them. Its direction, for about half a league, is from eaſt to weſt, and its termination at the foot of a ſtone bridge thrown over the Tagus. It is renewed on the other ſide, continues to much the ſame diſtance, and again terminates with a bridge over the ſame river, the windings of which can only be ſeized by the imagination, as it ſtrays through a valley ſhaded with groves of high trees and trelliſes, which at intervals conceal its courſe. Behind one of theſe thick curtains a caſcade is heard at a great diſtance, the noiſe of which alone diſturbs the tranquillity of this ſolitude. The intention of it is to carry off a part of the waters of the Tagus. The branch of this river thus turned from its bed, runs in a made channel through a deep ditch, and proceeds to water part of the plantations of Aranjuez, and ſupply the neceſſities of its inhabitants. But ſhades and verdure of a ſudden ceaſe, nothing now is ſeen before you but hills piled on each other, which cloſe the valley, and whoſe aſpect it has been the work of art to conceal, in order to prevent the deadening effect it would otherwiſe have on the landſcape. At the foot of theſe hills are ſtables of breeding mares, belonging to the King of Spain, and in which the breed of Spaniſh horſes is ſtill preſerved in all its ancient beauty. The building has for inſcription *, *Vento gravidas ex prole putaris.* The ſwiftneſs of the horſes bred here juſtifies the inſcription.

The King attaches great importance to the proſperity of the breed of Aranjuez; notwithſtanding this the embarraſſments conſequent on war ſuſpended the attention requiſite to ſuch an eſtabliſhment. But in 1796 a council was formed excluſively charged with this taſk, under the title of *Supreme Junta of Equitation.* The breeding ſtud of Aranjuez conſiſts at preſent of four hundred mares, and twenty ſtallions. In addition to this, the Prince of the Peace, who is particularly attached to whatever relates to the cavalry, maintains himſelf eighteen ſtallions, and one hundred and fifty mares. Aranjuez poſſeſſes likewiſe a breed of mules; for theſe beaſts, of mean appearance it is true, but extremely ſerviceable and beautiful of their kind, are not to be ſcouted entirely. There are therefore eighteen ſtallion aſſes, and three hundred mares kept on the ſame eſtabliſhment, as their more elegantly formed rivals.

* By their progeny you might deem them impregnate by the winds.

Leaving

Leaving this eſtabliſhment on the left, you re-enter the grand rows of trees which end at La Calle de la Reyna (Queen's-ſtreet).

The high trees, of which I have ſpoken, are not the only ornaments of this alley. On the right it is edged with copſes, which render its regularity more agreeable. Here ſkipped along or grazed the numerous herds of deer in the reign of Charles III., which have been deſtroyed by his ſucceſſor.

But the garden of the *Primavera*, or the ſpring, is the greateſt ornament of the *Calle de la Reyna*. Under the reign of Charles III. it extended no more than a thouſand paces along the Calle de la Reyna. Charles IV. continued it as far as to the Tagus.

Nothing can be imagined more delightful than this garden during the ſeaſon of which it bears the name. Here the fertility of the ſoil of the valley appears in all its richneſs. Uſeful culture is not forgot. Flowers, vegetables, fruit of every kind flouriſh in perfection. Groves yield hoſpitable ſhelter againſt the noontide heat. Copſes of odoriferous ſhrubs perfume the morning air, and the balmy vapours they exhale decline again at ſun-ſet to charm at the evening walk. Seventeen years ago, all the ground between the incloſure of the garden and the banks of the Tagus was uncultivated, and overgrown with noxious weeds. His preſent Majeſty, then Prince of Aſturias, by his taſte and attention, converted this into one of the moſt pleaſing parts of the valley. He ordered ſome uſeleſs trees, which ſhaded this fertile ſpot, to be cut down; graſs plats, ſhrubberies, and parterres have ſucceeded them, and paths wind acroſs this new treaſure of vegetation. In the interval between ſpring to ſpring a vaſt garden was produced, infinitely varied in its form as well as productions.

A little dock yard is contrived within its incloſure, and communicates by an eaſy deſcent with the Tagus. In this yard are carried on the works of a navy in miniature, which has its builders, ſailors, and veſſels. Farther on is a kind of port, defended by a proportionate battery. There are likewiſe little veſſels elegantly decorated, the guns of which reply to the artillery of the port. The noiſe of their cannon, the huzzas of the ſailors, and the diſplay of the flags and ſtreamers, induce the ſpectators to imagine themſelves preſent at the games of Neptune and Mars. Happy were men, if every where content with ſuch mimickry; if a thirſt after fame and riches no longer converted into means of deſtruction the properties of elements which nature intended perhaps but for their pleaſures!

Every country amuſement may be enjoyed at Aranjuez; hunting, fiſhing, walking. Walks are no where more varied, more commodious, more agreeable; whether with a book you wander through the ſhrubberies, or thread the long alleys on horſeback or in a carriage.

Formerly the deer there forgot their timidity, and in company with wild boars, were met with in the ſtreets. They might have been taken for domeſtic animals.

The buffalos brought thither from Naples are ſubſtituted for oxen, as working cattle. I even ſaw camels patiently apply their robuſt ſtrength to hard labour, but they were unable long to reſiſt the influence of a foreign climate. At the ſame time, two zebras grazed in a meadow near the high road, as alſo two guanacos, which ſeemed as perfectly at their eaſe as in their own country; whilſt an elephant calmly moved his unwieldy frame along, without being in the leaſt diſcompoſed by the crowds of people, whom curioſity brought about him. It is in this manner that ſovereigns ſhould openly expoſe the foreign animals which they crowd together in their menageries. Theſe magnificent priſons accuſe man of tyranny without proving his power. The Kings of Spain are at leaſt devoid of this reproachful magnificence. In the gardens of Buen Retiro they have lions ſhut up in ſmall buildings, whence ſometimes their threatening roar is

heard. They have a beautiful preſerve of pheaſants in the interior of the gardens of Saint Ildefonſo. But no where have they, properly ſpeaking, a *menagerie*.

Thoſe which more eſpecially contribute to the embelliſhment of Aranjuez are horſes. There they have room to diſplay all the beauty of their motions and their ſpeed. Thither the King occaſionally brings the magnificent ſets with which his ſtuds ſupply him.

Formerly the *Calle de la Reyna* was the courſe where horſes from Barbary diſplayed their ſwiftneſs, and each had his partiſans among the courtiers, who betted on his head.

The reigning monarch, then Prince of Aſturias, ſubſtituted inſtead of theſe, games, called *Parejas*. A ſquadron was formed of four abreaſt and twelve deep. The files were commanded by himſelf, one of his two brothers, and one of the principal perſons of the court, each with a diſtinguiſhing colour. The forty-eight cavaliers were all clothed and accoutred in the ancient Spaniſh manner, a uniform advantageouſly calculated to give to the whole a military and antique appearance, and to carry back the actors to the age of their anceſtors. They were looked upon with all that intereſt which the image of things paſt generally excites, as they advanced in column on one of the large courts of the caſtle to the ſound of trumpets and kettle-drums, preceded by running footmen, and led-horſes richly capariſoned, all at once dividing, galloping away from each other, then again approaching, now at full ſpeed round the arena, and now croſſing it diagonally, thus diſplaying all the grace of their beautiful racers. This cold, this feeble repreſentation of the ancient tournaments, reminded the ſpectators of thoſe regretted feſtivals at which, under the eyes of the ſovereigns, and beauties of the age, the knights obeyed the double impulſe of love and fame, and obtained in the ſuffrages of thoſe who reigned over their hearts an ineſtimable recompence for their courage and addreſs. And in order even to make the moſt devoted courtiſans take any pleaſure in this modern dance of centaurs, it was neceſſary that the ſons of their King, for whoſe amuſement it was eſtabliſhed, ſhould be co-actors in the arena.

The King for ſome years back has laid aſide this amuſement, and adopted others more conformable to his taſte. One that appears to be moſt pleaſing to him, is to attend the trying of artillery in the *Huerta de Valentia*, the noiſe of which diſturbs the calm of this charming reſidence, more frequently than is agreeable to the ladies, or thoſe of effeminate manners.

But he particularly delights in embelliſhing his garden, a part of which is now ſurrounded by the banks of the Tagus. A ſort of pond has been made here, in the midſt of which is erected a kioſk, a ſmall Greek temple, and on a heap of rough ſtones, or rather a rock, is an Apollo in marble. In the neighbourhood there is a barge in the Chineſe taſte, fitted up for navigating this artificial lake; whimſical union of irrelevant objects, the trivialty of which is ſtriking, notwithſtanding expenſive decorations! But nature here has done ſo much; flowers, exotic plants are found in ſuch plenty; foreign trees, the moſt ſingular and beautiful, and particularly long rows of weeping willows and catalpas ſucceed here ſo well, and yield ſo cool a ſhade; ſo many means of watering, ſuch a variety of proſpects in deſpight of the evenneſs of the ground exiſt here, that the garden of Aranjuez forms, without doubt, one of the moſt agreeable promenades in Europe. The tribute which thus I pay is due to this ſpot in return for the delightful hours that I have paſſed under its leafy ſhades, as wandering through its mazes of flowers and verdure, I diverted my mind from the cares of a troubleſome negotiation with the enjoyment of the vegetable riches of *the new and the old world*.

The new palace and other edifices are of a pleaſing form, void of magnificence. The royal apartments in the reign of Charles III. contained few paintings of value. They have however lately been much enriched by the ſpoils of St. Ildefonſo, and contain now

more than four hundred paintings, among which ſome by Guido, Guercino, Lanfranc, Pouſſin, &c. The new chapel of the caſtle is of a good ſtyle. Sculpture and gilding are therein diſtributed with taſte, without profuſion, and a few pieces by Mengs contribute not a little to its decoration.

Aranjuez contains three churches. The moſt recent is that of the convent of Franciſcans, called St. Paſchal, and was founded by the confeſſor of Charles III. in the moſt elevated ſpot of the whole reſidence. I remarked, in the veſtibule of this convent, pious ſtanzas of a ſingular kind.

Oppoſite to this church is a royal hoſpital, extremely well placed and worthy of notice for the aſſiſtance of every deſcription afforded through its means to the ſick.

Sickneſs is very prevalent in this abode of Aranjuez, in other reſpects ſo engaging. As long as the temperature of the air is moderate, every thing about the palace charms the ſenſes, and the happineſs of exiſtence is perfectly enjoyed; but ſoon as the violent heats of ſummer begin, when the ſcorching air, ſhut in by the valley, is loaded with exhalations from a ſlow and muddy river, and with nitrous vapours drawn by the ſun from the hills between which the Tagus runs, this valley of Tempe becomes a pernicious abode, "*capable d'enrichir en un jour l'Acheron* *." The inhabitants withdraw from it, and ſeek, upon the neighbouring heights, particularly at Ocanna, a more wholeſome atmoſphere. Aranjuez, which, during the month of May and half of June, contains about ten thouſand inhabitants, and is the reſort of thoſe who wiſh either for health or pleaſure, becomes a deſert excluſively inhabited by wild boars and deer. Few perſons remain there, except thoſe who are attached to it either by profeſſion or poverty.

Formerly the King did not uſe to repair hither until after Eaſter, and remained until the end of June. The new court, which prefers Aranjuez to all its reſidencies, now goes there as early as the beginning of January.

Aranjuez is on the road from Madrid to Cadiz. I ſhall now trace it in company with my reader.

CHAP. IV.—*Road from Aranjuez to Cadiz.—La Mancha.—Colonies of Morena.—Baylen.—Anduxar.—Cordova.—The kingdom of Granada.*

IT is only ſince 1785 that it has been poſſible to travel poſt from Madrid to Cadiz. Until then this mode of travelling was utterly unknown in Spain, excepting on the road from the capital to the reſidence of the court at the time †.

Two leagues from Aranjuez you meet firſt with the little town of *Ocana*, remarkable for its ſchool of cavalry, which, under the auſpices of General Ricardos, has been for theſe ſeveral years in a ſtate of proſperity.

On leaving Ocana the eye takes in a vaſt plain perfectly flat, the firſt ſpecimen of La Mancha. Next ſucceeds *Guardia*, which, if the church be excepted, appears a heap of ruins; afterwards *Tembleque*, a town of one thouſand five hundred houſes, not deſtitute of induſtry. Some little ſaltpetre is extracted from the ground about it, no embelliſhment to its neighbourhood. *Tembleque* has a tolerably pleaſant promenade, an invaluable property in the arid plains of La Mancha.

* Capable of enriching in one day the ferryman of hell.

† Within theſe few years a traveller may go poſt in ſeveral different directions, particularly from Madrid to Cadiz, in ſmall chaiſes, which are furniſhed by the poſt-maſters, although the cuſtom of travelling in *coches de colleras*, drawn by ſix mules, be ſtill prevalent, as well as in *calaſhes* drawn by two. There is a cheaper mode of travelling on the back of a mule preceded by the garde on foot, or with meſſengers called *ordinarios*, who go at ſtated periods from one great town to another, but in Spain, properly ſpeaking, there is no ſtage, that between Bayonne and Madrid being diſcontinued.

The

The following poſt-houſe is one ſtanding by itſelf, called *Canada de la Higuera*, the moſt miſerable inn on the road.

Two leagues farther is *Madridejos*, a pretty village, on leaving which one is agreeably ſurprized to find, in the midſt of plains totally deprived of verdure, a row of white elms, ſome garden grounds, and a few tufts of trees, *rari nantes in gurgite vaſto.*

At the end of three leagues of perfectly level and unvaried country, you arrive at *Puerto Lapiche*, a ſmall village at the foot of two hills, near which Don Quixote, at the beginning of his career, equipped himſelf as a knight.

At *Villalta* coarſe cotton cloths are fabricated. Before you arrive there, you croſs a long and narrow ſtone bridge, on each ſide of which is a large pool of ſtanding water covered with marſhy plants. This ſpecies of moraſs is the river Guadiana, which, at ſome diſtance thence, hides under ground its lazy waves entirely, and re-appears afterwards at a place called *Los ojos de Guadiana*, traverſes Eſtremadura and a part of Portugal, and then falls into the ſea, dividing the latter kingdom from Spain.

Five great leagues ſeparate Villalta from Mançanares, one of the largeſt towns of La Mancha, and one of the principal quarters of the carabineers; and where to counterbalance the abundance which they ſpread throughout the diſtrict, they are rather too prone to violate the laws of hoſpitality, ſetting good manners at defiance.

The wine of the neighbourhood of Mançanares is little inferior to that of *Val de penas*, another town four leagues diſtant. The whole of this diſtrict is the true country for good La Mancha wine. It is of two ſorts. The firſt of a deep ruby tint, poſſeſſes more body and ſtrength than any of our wines, if thoſe of the banks of the Rhone and Rouſſillon be excepted; but there is little free from a taſte of pitch, which it contracts from the veſſels in which it is cuſtomarily kept. The white wine is leſs common than red. Its tint approaches that of Champagne, but it is ſomewhat rough. It is exported to England and America. The red wine is moſtly conſumed at home.

Santa Cruz, two leagues beyond *Mançanares*, is the chief of the eſtates of that grandee of Spain, who is grand maſter of the King's houſehold, and governor of the Prince of Aſturias. After this, you arrive at the ſmall village of *Almoradid*, where the immenſe plains of La Mancha terminate ſouthward.

Perhaps all Europe does not contain a diſtrict more level than that which one has to paſs over for two-and-twenty wearieſome leagues from Tembleque to Almoradid. Nothing can be more monotonous than the proſpect of this immenſe horizon. During two or three hours travelling not one ſingle habitation exiſts on which to reſt the eye; it wanders over vaſt fields not in the higheſt ſtate of cultivation, although nothing but the exceſſive drought prevents a diſplay of the excellence of the ſoil. Some ſtraggling plantations of olive-trees, planted at great diſtances apart, interrupt at times the uniformity that reigns through the country.

This province however is not throughout its whole extent ſo even as that from Madrid to Cadiz. To the weſt of Tembleque and Madridejos, are large valleys, leſs bare than its plains. Charles III. was accuſtomed to go every other year to the neighbourhood of Yvenes, a village ſituated twelve leagues from Aranjuez. It commands a large and beautiful valley in which are olive plants in profuſion, and on the oppoſite ſide riſes, above a chain of hills, the old caſtle of *Conſuegra*. The town of that name, of fifteen hundred houſes, is at the foot of the caſtle. It belongs to the grand priory of Malta, which was held by the Infant Don Gabriel. This prince, who will long be regretted in Spain, who loved the arts and his country, delighted in embelliſhing the environs of Conſuegra.

La

La Mancha, ſo well known by its wines, ſo much better by the exploits of Don Quixote, whoſe hiſtorian was as correct as a geographer, as faithful as a delineator of the manners of this part of Spain; La Mancha contains many places more remarkable than thoſe celebrated by Cervantes. *Ciudad Real* is its capital. It was formerly the principal reſidence of the old *Santa Hermandad*, previous to the King St. Ferdinand; its object was to purge the country of the thieves with which it was infeſted. It has at preſent a poor-houſe, which it owes to the humanity of the Archbiſhop of Toledo, who felt for the indigent part of his flock diſperſed throughout La Mancha. It is a ſuperb edifice, which in 1790 had already coſt more than 2,000,000 of rials. Almagro, another town of three thouſand inhabitants, is in the middle of a very extenſive plain, four leagues from Santa Cruz. You arrive at the former from the latter place, paſſing over a country entirely uninhabited through immenſe paſtures.

But let us reſume the road to Cadiz. On leaving Almoradid you approach the *Sierra Morena*. Four-and-twenty years ago, in order to avoid this diſtrict, the dread of travellers, you were accuſtomed to turn more to the weſt, in order to reach the chain of mountains, known by the name of the Sierra Morena, or the black foreſt. After paſſing the borough of Viſo, one was uſed to croſs it at the peril of one's life in one of its ſteepeſt parts, called *El puerto del Rey*. LeMaur, a Frenchman, attached for a long time to the corps of engineers in Spain, was ſelected in 1779 by Count Florida Blanca to make this road, the moſt frequented in Spain, at leaſt paſſable. He has ſubſtituted for the old road one of the fineſt in Europe, notwithſtanding the difficulties oppoſed by the nature of the ground it had to traverſe. He conſtructed bridges, ſlopes ſupported by maſonry, and walls high enough to afford ſupport, ſlight ramparts, ſheltered by which you drive fearleſs and without danger over the brink of precipices. In this manner you arrive at *Deſpenaperros*, a ſpot at which the rocks approaching each other ſeem diſpoſed to form a vault over the head of the traveller. At the bottom of the valley, a rivulet ruſhes along with great noiſe, the waters of which are intended to ſupply a canal projected by this ſkilful engineer. A little farther is the poſt-houſe of *Las Correderas*, ſurrounded by a group of huts in midſt of the mountains.

Hence with little trouble you aſcend as far as to La Carolina, a town entirely modern, the chief place of the colony of La Sierra Morena. The flouriſhing ſtate to which it was carried by Don Pablo Olavides did not long continue after his diſgrace. Slight as the funds were, which were ſet apart for its maintenance, they were not exactly paid. The zeal of the parties diminiſhed, and the works were interrupted. The managers as well were too haſty in impoſing taxes on the coloniſts, with intention of proving to the court, that there was a proſpect of the eſtabliſhment reimburſing in a few years the expences of its formation. So many motives of diſcouragement cauſed agriculture to languiſh, and many families left the colony. Nevertheleſs in 1785 this little capital and its dependent hamlets contained five thouſand and forty-four perſons. The German families, which at firſt were numerous, have partly diſappeared, and thoſe who remain have become blended with the natives. For more than ten years there have been no prieſts who ſpeak their language. But lately this intereſting colony, an affecting ſpecimen of the wonders of which a government is capable that is ſincerely deſirous of doing good, continues to juſtify its cares and hopes. In order to appreciate duly the value of this creation, the ſpot ſhould have been previouſly ſeen, when deſtitute of inhabitants and waſte. But there, as is every where the caſe, intrigue and envy have rendered in meaſure abortive the fruits of genius and beneficence.

Guarroman, the firſt ſtage from La Carolina, is a town built at the ſame epoch, whoſe inhabitants continue to proſper. You leave the Sierra Morena at Baylen, an ancient town, whoſe diſtrict can boaſt one of the fineſt breed of horſes in all Andaluſia.

At about a league from Baylen I remarked to the left a large *venta* M. Olavide had ordered to begun, but ſince his diſgrace it has been neglected, as if it had been ſtruck by the ſame anathema as its founder.

You afterwards paſs the *Rumblar*, over a ſtone bridge; a league farther on it falls into the Guadalquivir. From *La Caſa del Rey*, a ſolitary inn in the middle of the woods, you firſt perceive the Guadalquivir, and reach it at a little diſtance from Anduxar. Jaen, the biſhop of which has been the grand inquiſitor for many years, and which is the capital of one of the four kingdoms of Andaluſia, is ſix leagues from Anduxar. Many Roman inſcriptions are ſeen here, which atteſt its antiquity. When rain is not wanting, the country between theſe two towns is exceedingly fertile.

Anduxar is one of the richeſt and moſt ancient towns in Spain, but its unhealthy poſition expoſes its inhabitants to maladies, for which in the ſpontaneous and numerouſly variegated productions of the vegetable kingdom proſtrate before them, they might readily find a remedy. Not leſs rich below its ſurface than above; the entrails of Anduxa are replete with veins of metal, minerals, valuable marble, rock chryſtal, &c. The environs of the town are agreeable, and foretel the neighbourhood of a river. The Guadalquivir flows at ſome diſtance from its walls. From this part, for a long time, has exiſted a project for rendering it navigable; but previouſly it will be requiſite to deſtroy three mills, which bar its courſe from ſide to ſide.

A ſtage of three long leagues and a half brings you to *Aldea del Rio*, a large village upon an eminence, on the bank of the Guadalquivir.

Four leagues farther you arrive at *El Carpio*, a town of one thouſand five hundred inhabitants, on the left bank of Gadalquivir; before you arrive there, you diſcern from the road the pretty town of *Bujalança*, ſituated in the midſt of a vaſt plain, productive of wine, grain, and oil.

From this place to *Cordova* is five long leagues, one half of which is acroſs a country entirely naked of trees, but not barren. At about half way you croſs the Guadalquivir at *Las Ventas de Alcolea*, over a bridge, which is one of the fineſt ſtructures on the new road. Thence to Cordova the Guadalquivir flows on the left, and on the right the back of the Sierra Morena is diſtinguiſhed. This long chain of woody mountains, of which you do not loſe ſight from your firſt entrance into Andaluſia, compenſates for the perfect nudity of the country you paſs through. One is notwithſtanding in the center of that Bœtica ſo much celebrated by the ancients, and of which the magic pen of Fenelon has made a country of enchantment, the abode of happineſs and plenty. Such in fact might modern Bœtica become; at preſent maugre the fineſt climate in the world, and its moſt valuable and numerous productions, it but excites regret.

As you approach Cordova from Madrid, it poſſeſſes nothing ſtriking; but as you proceed to it from Cadiz, it forms a ſemicircular amphitheatre on a gentle ſlope along the Guadalquivir.

The native place of the two Senecas, and Lucan, of Averrhoes, and ſeveral learned Arabs, and of that great captain Gonzalve de Cordova, it now contains nothing remarkable except its cathedral, one of the moſt curious monuments in Europe. Formerly it was a moſque begun by the Mooriſh King Abdarame, who, deſirous of making it the principal temple of the Mahometans, next to that of Mecca, adorned it with moſt rare magnificence. Lengthways it has twenty-nine naves, and in breadth nineteen, upheld by more than a thouſand columns, if you include the hundred, which from the interior ſupport the cupola. The eye is more ſurprized than delighted at the ſight of a foreſt of columns, which perhaps cannot be equalled throughout the world. They are all either of marble of different colours, or of jaſper, but ſomewhat tarniſhed by time. The whole building, which on the outſide preſents to the eye nothing but an unſhapen maſſive edifice,

edifice, is ſix hundred and twenty feet in length, by four hundred and forty in breadth. Lengthways in one part, it fronts a large court, below which is an ample vaulted ciſtern. This court has a diſmal appearance, it is planted and particularly with orange trees, whoſe ancient and tufted foliage ſerves as an aſylum to a number of birds, and ſhades ſeveral fountains, which diffuſe a perpetual cool.

After the conqueſt of Cordova in 1236, St. Ferdinand transformed this moſque into a cathedral, which preſerved its ancient form up to the time of Charles V. In his time, and ſince, it has experienced many changes, and ſome enlargement. On two ſides of one of its ſixteen gates, are placed two milliary columns, which were dug up in the cathedral itſelf in 1532.

Beſides this edifice and a collegiate church, Cordova has 15 churches, 40 convents, and a number of religious eſtabliſhments. Need we go farther to look for the origin of its deſtitute ſtate, and its want of population? In ſo fine a climate, in midſt of ſo many ſources of proſperity, it contains no more than 35,000 inhabitants. Formerly celebrated for its manufactories of ſilks, fine cloths, &c., it has now no other induſtrious occupations, but a few manufactories of ribbons, galoons, hats, and baize. Its vicinity is the moſt productive in grain and olive trees of all the diſtrict, but one of the moſt naked in Spain. The traveller, however, ought not to leave Cordova without viſiting its breed of horſes, the fineſt and beſt attended to of any in Andaluſia. The ſtables pertaining to the eſtabliſhment, which belong to the King, contained, in 1792, 612 horſes of all ages, among which 21 ſtallions.

The Kingdom of Cordova adjoins that of Grenada. In going from one capital to the other you croſs a great portion of the grounds belonging to Cordova. The moſt remarkable places on the way are *Fernan-nunez*, from which one of the late ambaſſadors to France took his name, and in which he founded ſome uſeful eſtabliſhments; *Montilla*, whoſe territory produces an excellent but very dry *vin de liqueur*, little known out of Spain, but highly eſteemed by connoiſſeurs; *Baena*, a town of a thouſand houſes; *Alcala la Real*, ſituated on hill, and containing eight or nine thouſand inhabitants; and laſtly *Pinos de la Puente* at the entrance of the ſuperb plain of Grenada.

I did not ſee it, and ſhall ever regret that I did not ſee this country, ſo well worthy the curioſity of travellers, in which nature is at once grand and pleaſing; in which the moſt pictureſque ſcenery is found; high mountains whoſe ſummits are eternally covered with ſnow, rich valleys whoſe freſhneſs is proof againſt the moſt ſcorching heat, torrents of limpid water, which plunge with daſhing noiſe from the heights of precipices, and flow along the meadows which they fertilize, but ſeldom ſweep with floods; this happy country, which, under the combined influence of a burning ſun and natural irrigation, produces the moſt delicious fruits of every climate; plants which ſeem to belong to the moſt oppoſite zones, the hemp of the North even growing beneath the ſhade of the olive and the mulberry. I did not ſee that ancient city, which preſerves entire the monuments of the magnificence of the Arabs; where every thing recals to memory that active and induſtrious people, whoſe expulſion is one of the principal cauſes of the decline of the arts in Spain. But this picture, which I have only ſketched, has been painted in an exact and engaging manner by one of my friends, now no more (*Peyron*), whoſe deſcription of the kingdom of Grenada is one of the moſt intereſting parts of his *Eſſays on Spain*. But, if the reader be deſirous of appreciating as an architect the famous cathedral of Cordova, (perhaps too much magnified,) and take a view of that magnificent palace of the Mooriſh Kings of Grenada, known by the name of the *Alhambra*, he may refer to the plans of thoſe two monuments engraved by direction of the court of Spain in 1780, a copy of which is in the national library of France.

Shall we confine ourſelves to this firſt ſpecimen of the curioſities of Spain? This kingdom produces them of every deſcription: traces of the ſojourn of the Carthaginians ſtill perceptible, maſter-pieces of Gothic architecture, Roman antiquities, monuments of Mooriſh magnificence, ſcarcely injured by time, pictureſque ſpots, in the boſom of rocks fantaſtically grouped. On the ſummit of hoary mountains, in the maze of vallies, on the banks of the torrents of the kingdom of Grenada, on the coaſts of the ocean, and the Meditterranean; in the gardens and neigbourhood of St. Ildefonſo, within the reſidence, about the gloomy palace of the Eſcurial, in the chearful baſon of Aranjuez, nay in a thouſand places of Spain, the pencil of the artiſt is invited. We have *pictureſque travels in Greece, Italy, and Sicily.* Theſe give room for a deſire on the part of the lovers of the arts, and the admirers of antiquity, for ſtill another of this deſcription. Charles IV. might render his reign illuſtrious in ſatisfying this common wiſh of all enlightened Europe. At this price he would have nothing to envy in the monarch who has left him ſuch a great example in reclaiming from the bowels of the earth, and reſtoring to the living, the ruins of *Herculaneum.*

Let us turn from this digreſſion, brought on by the kingdom of Grenada, and reſume the road to Cadiz.

From Cordova to *Ecija*, are ten leagues of road, in great want of repairs which it has lately undergone. The country itſelf has been peopled within theſe five-and-twenty years by new coloniſts, whoſe dwellings are diſperſed along the road.

After changing horſes at the new and ſolitary *Vinta de Mango Negro*, you arrive at Carlotta, a pretty village founded with the ſame view, and nearly at the ſame time, as that of Carolina. Theſe are the principal places of the new colonies of Andaluſia. The ſame intendant preſides over both colonies. Carlotta, the capital of the ſecond colony, had no more than ſixty inhabitants in 1791; but in its neighbourhood were ſix hundred.

Luiſiana, another colony beyond Ecija, had then no more than two hundred and forty. And laſtly, a little further *Fuenta Palmera*, another village belonging to theſe new eſtabliſhments, counted within its diſtrict three hundred and fifty houſes pertaining to coloniſts.

It is a ſpectacle which philoſophy delights in contemplating, that of theſe colonies created by intelligence and humanity. One is yet ſurpriſed at their ſlow progreſſion. Is it owing to any radical vice, to the want of that firm and reſolute diſpoſition, without which nothing is well done? Or is it to be imputed to an innate repugnance among Spaniards to expatriate themſelves, or change their abode? Whence is it that ſo few coloniſts are drawn by the hope of ameliorating their fate from the better peopled, but more wretched parts of Spain, nay even from foreign countries, where a territory ſo fertile invites them to eaſe, as that particularly of the neighbourhood of Ecija? It is ſaid that the produce of the land is forty for one, and that the garden grounds, which in great number border the banks of the Xenil, yield three and four crops in a year. Do the *Sciotto* the *Kentucky*, which muſt be ſought beyond the main, preſent more powerful attractions? Yes, for there man enjoys both civil and religious liberty; theſe are yet wanting in Spain, which is all that it requires to become both proſperous and happy.

Ecija, a tolerably large town, and one of the moſt pleaſant in Andaluſia, is ſituated between Carlotta and Luiſiana. Many of its houſes, and ſome of its churches are painted on the outſide, in a moſt ridiculous ſtyle. It has ſix thouſand houſes. Fragments of marble colums, trunks of ſtatues, ſtones covered with incriptions, atteſt its ancient ſplendour. Its ſituation between two hills on the weſtern ſide of the Xenil, which

flows from Grenada through an ample plain, expoſes it to intenſe heats, and frequent inundations. This town and its neighbourhood poſſeſs all the elements of proſperity. Plots of olive trees, luxurious fields, vineyards, and extenſive paſtures, produce its inhabitants riches in abundance: but they are deſtitute of thoſe manufactories for which they were formerly celebrated. On entering the town you may behold, but cannot admire, the venerated image of St. Paul, the patron of the town, and at the oppoſite gate you ſee the ſtatues of Charles III. the King, the Queen, and the infant Don Louis.

From Ecija you may perceive *Eſtepa* at five leagues diſtant on a hill, from the top of which you have a commanding view, over a vaſt, and very fertile country, covered with olive trees.

Three leagues from Ecija, you find *Luiſiana*, a new colony, the houſes of which ſome years ago began to go to decay. This afflicting ſpectacle preſents itſelf again about a league farther, at a ſpot where theſe colonies of the Sierra Morena terminate. They begin on the other ſide of the mountains at La Conception de *Almuradiel*, and comprize in all a ſpace of forty leagues.

The road to connect them, an object long deſired, is at length nearly compleated. In order to render it paſſable in all ſeaſons, it has been found neceſſary to conſtruct over rivers, rivulets, and marſhy places, rendered impracticable in rainy weather, nearly four hundred bridges, as well large as ſmall.

On leaving Luiſiana, on a very bleak hill, you diſcern ſome of the houſes of the town of *Carmona*, which commands vaſt plains covered with olive trees, and extremely fertile, eſpecially in wheat and that of the moſt ſuperior quality. It is a chearful animated town. Good taſte, however, is offended at its principal belfry, a modern bauble badly modelled after the ſpire of Seville, and loaded with whimſical ornaments of different colours.

The gate of Carmona is a monument of the ſolidity of Roman works. It appears to be of the time of Trajan, and in ſome places has been ridiculouſly patched by modern hands.

From Carmona to Seville, is ſix leagues, which you travel over between vineyards, olive grounds, and robuſt aloes, which ſerve at the ſame time for hedges and ornament to the fields. Will it be credited? This lovely country is almoſt wholly uninhabited.

The great road from Madrid to Cadiz does not paſs as it uſed to do through Seville, but through the borough of Alcala, two leagues higher up on the banks of the Guadalquivir. Who would not diverge from the road to view this famous town, the ſecond in the kingdom, that of which the Andaluſians, who are the Spaniſh Gaſcons, have long been uſed to ſay,

Quien no ha viſto Sevilla
No ha viſto maravilla *.

The way about is not bad, but the Sevillians have come to a reſolution to join their town to the high road by a ſuperb cauſeway.

* He who has not ſeen Seville, has yet a wonder to behold.

CHAP. V.—*Seville.—Xeres.—Arcos.—Approaches towards Cadiz.*

THE ſituation of Seville is admirable, its climate delicious, its environs fertile. But what little advantage has been reaped from ſo many bleſſings! Or rather how different is its preſent to the former ſtate of this town! The hiſtorians of the day aſſure that when taken by St. Ferdinand 400 thouſand Moors marched out of its gates, excluſive of thoſe who periſhed during the ſiege, and ſuch as choſe to remain. If the complaint addreſſed by the manufacturers to government in 1700, be credited, Seville formerly employed 16,000 looms for ſilks, and in the different proceſſes for making that article not leſs then 130,000 perſons. At preſent they have 2318 looms; and no more than from 18 to 19 thouſand inhabited houſes.

Its cathedral, famous all over Spain, contains a number of ſtatues, many of which poſſeſs merit, tombs, more or leſs decorated, and vaſt chapels, overloaded with ornaments. Among thoſe of the babtiſmal fonts, two paintings richly deſerve notice; they are by that charming painter born at Seville, and which contains his principal productions, productions which were long wanted for the collection of the Kings of France, and which at length make a part of the national muſeum, they are by Murillo. Nine other paintings, by this artiſt, are ſeen in the capitulary hall, in which all other ornament might well be ſpared, and two in the veſtry. In the chapel of Kings, among other tombs that of St. Ferdinand is noticed, covered with inſcriptions in Hebrew, Arabic, Latin, and Spaniſh; that of Alphonſo X., ſurnamed the wiſe, or the aſtronomer, &c. But the tombs of none of the monarchs make ſo profound an impreſſion, or ſo much awakens the mind to the memory of ancient days, as that of Chriſtopher Colon, placed before the choir with the following inſcription, remarkable for its brevity:

A Caſtilla y Arragon,
Otro mundo dio Colon.

His ſon Don Ferdinand who, but for his fame being eclipſed by that of his father, might paſs for a great man, has his tomb in one of the chapels; but his epitaph is not ſo beautiful, it is longer, not equally ſimple.

The ſpire of this cathedral, known by the name of the *Giralda*, is one of the fine monuments of Spain. You aſcend it by a ſpiral gallery without ſteps. It is 250 feet high, and has on its top a ſtatue repreſenting Faith; above one of the five naves of the church is the library, which contains 20,000 volumes. This is not a collection merely for oſtentation at Seville. Next to the capital, this is the town which contains the greateſt number of enlightened men. Its patriotic ſociety may cite more than one member diſtinguiſhed for learning and patriotiſm. A taſte for the fine arts in particular is much cultivated at Seville; its inhabitants pride themſelves on having ſeveral maſters of the Spaniſh ſchool, for countrymen, ſuch as Roclas, Vargas, Zurburan, and eſpecially the incomparable Murillo, whoſe talents cannot be properly valued except by thoſe who have ſeen the numerous maſter-pieces which he has left behind him in Spain. The hoſpital of charity contains ten, which excite the higheſt admiration in connoiſſeurs. In one of the cloiſters of the convent of St. Francis, are eleven; and laſtly, at that of the capuchins, one is delighted with ſeveral paintings by this great maſter, particularly with a Chriſt, who detaches himſelf from the Croſs, with the moſt moving expreſſion of kindneſs, to embrace St. Francis.

Beſides

Beſides theſe maſter-pieces of painting, and others of the Spaniſh ſchool, many remarkable buildings deſerve notice at Seville.

At the head of theſe ſtands the exchange, or Loriga, a diſtinct building, each front of which is 200 feet long. It has lately been repaired and ornamented, and is to be the repoſitory of all old papers relative to Spaniſh America; archives of valorous deeds, of misfortunes, and crimes, in which hiſtory and philoſophy will long have treaſures to find.

The Alcazar is a magnificent edifice, begun and for a long time inhabited by the Mooriſh Kings; it was enlarged by the King Don Pedro, and afterwards by Charles V. who added ſome taſty embelliſhments. Many Spaniſh Kings have reſided in it, and Philip V., who paſſed ſome time there with all his court, felt inclined to fix there his abode; a project which, ſeparate from political conſiderations, would probably before this have taken place, to the great ſatisfaction, if thoſe of Madrid be excepted, of all the inhabitants of Spain.

In this Alcazar are collected ſeveral fragments of ancient ſtatues, diſcovered at ſome diſtance from Seville. This precious harveſt is principally due to the attention of Don Franciſco Bruno, an enlightened antiquarian, and a zealous and indefatigable citizen, who is an honour to his country.

Another building, which ſhews a deal of taſte, is the tobacco and ſnuff manufactory, compleated in 1757; a prodigious eſtabliſhment, as well for the ſize of the edifice as the number of hands it employs. There the tobacco in leaves is received as it comes from the Havannah, where but a ſmall quantity is manufactured; the details of the manufacture of this article are not unintereſting. In making of ſnuff, the leaves are firſt reduced to powder, a kind of ochre is then prepared (*almazarron*) with which it is mixt to give it its colour. The ſnuff thus mixed is incloſed in little tin boxes, regiſtered, ticketed, put into bales, and ſent over all parts of the peninſula. A ſeparate apartment is deſtined to the forming the little rolls, called *Cigars*, the conſumption of which is ſo conſiderable in Spain. It would be difficult to find, in ſo ſmall a ſpace, either greater activity or more variety of occupations.

The foundry of copper cannon, which, with that of Barcelona, ſupplies all the Spaniſh arſenals in Europe, is alſo a building remarkable for its extent and the excellent manner in which it is planned. The method of M. Maritz is ſtill followed there, with ſome trifling variations. But there is great room for a ſaving in the expences of this eſtabliſhment. Each quintal of refined copper, ſome years ago, coſt the King about fifty reals (ten ſhillings and three-pence). A little before then, a Frenchman propoſed to the King a method which would have made a ſaving of twenty-two reals a quintal. The propoſition was rejected. The Frenchman perſiſted, and the proofs at which the Spaniards vouchſafed to be preſent, that they might not too openly betray their ill will, ſhewed the excellence of the copper refined and caſt according to his method: but intrigue, which was not idle on this occaſion, found means to prevent the experiment from being any further proſecuted; and I underſtand that the expenſive eſtabliſhment, formed at Port Rial oppoſite to Cadiz, is limited to furniſhing copper bolts for ſhipping.

The mint is one of the moſt ancient buildings in Seville. It formerly was greatly employed. Writers of the day affirm that the coinage in gold and ſilver together was to the amount of ſeven hundred marks daily. For a long time no other money was coined there, except for the uſe of individuals. It is only ſince 1718 that coin has been ſtruck for the King's account.

To theſe are to be added the ſeminary of St. Telme, which is a ſchool for pilotage, and the golden tower, (Del Oro,) an old building attributed to the Romans. Its object was, without doubt, to facilitate navigation. Here it was that a chain was extended by the Moors acroſs the Guadalquivir to the ſuburb of Triana, on the oppoſite bank. This river has its ſource on one ſide of the chain of mountains called Sierra de Segura, and takes its courſe towards the ocean; while the Segura, which riſes on the oppoſite ſide, runs towards the Mediterranean; down this ſtream is floated the ſhip-timber requiſite for the ſupply of Murcia, Orihuela, and Carthagena, with different other deſcriptions of wood which abound in the mountains.

It was to the Guadalquivir that Seville owed its ancient grandeur. At the period of its greateſt luſtre the largeſt veſſels came up to the quays of Seville, and thoſe of inferior burthen proceeded as high up as Cordova. At preſent ſhips of great draught come up no higher than *Bonauza*, a village fifteen leagues from Seville, whence the cargoes are brought up in lighters; none above eighty tons burthen being able to aſcend ſo high as to the city.

Some principal buildings adorn that part of the banks of the Guadalquivir, which fronts the ſuburb of Triana. There it was that Lerena, while intendant of Andaluſia, began a plantation which has ſince become a delightful promenade; and which, when its ſhades ſhall become ſomewhat thicker, will leave no room for the inhabitants to envy the capital in this reſpect. Already was the city indebted to M. Olavides for a part of its wharfs, and ſeveral uſeful eſtabliſhments, when he was ſeparated from them. The anathemas of the Inquiſition have prevented his name from being publicly mentioned, but have not been able to prevent a general affection for his memory.

The interior of the city poſſeſſes a fine walk adorned with fountains, and formed by five rows of trees, whoſe roots are watered by little canals.

The neighbourhood of Seville, in common with that of moſt of the towns of Andaluſia, is well cultivated. As you leave the bare and unpeopled plains of Caſtile and Murcia, you ſee with pleaſure its orchards and its country-houſes.

But what above all render the neighbourhood of Seville deſerving the attention of the traveller, are the ruins of Italica, an ancient Roman town, the birth-place of Silius Italicus. It was ſituated north of Seville, a league and a half diſtant, along the left bank of the Guadalquivir. The monuments of it which yet remain are preſerved from the injuries of time and ignorance by the care of ſome monks, whoſe convent is in their vicinity. M. Brouſſonet, having lately travelled through Spain, has ſince publiſhed an intereſting account of Italica and its ruins.

The modern road from Carmena to Cadiz preſents nothing remarkable before you reach Xeres, unleſs it be the town of *Utrera*, which has two thouſand houſes.

As you go to Xeres you have a very favourable view of the town. A little energy would make it one of the moſt intereſting that Spain can boaſt. A more delightful ſite could not have been choſen; and its ſtreets are in general both wide and ſtraight. From the ſummit of the Alcazar, which is greatly frequented, you have the moſt agreeable proſpects imaginable over the adjacent country.

The territory requires nothing more than a greater attention to its culture to make it one of the moſt fertile countries in Europe. Produce of every deſcription ſucceeds there; vineyards, which form its principal reliance, olive-grounds, paſtures, fir, oak, hemp, &c. Its vineyards, notwithſtanding their imperfect ſtate, yield, *communibus annis*, 360,000 arrobes of wine, (10,000 pipes,) of which about 200,000 are exported, principally by the Engliſh and French. The cultivation of wheat might be doubled. Neglected as it is at preſent, it ſubjects the country to frequent dearth.

Olive-

Olive-grounds are in a ſtate of ſtill inferior improvement; ſeldom does the annual crop exceed 32,000 arrobes of oil (110,000 gallons). Silk-worms would flouriſh here, and give work to thouſands of women who are deſtitute of employment.

Its breed of horſes has greatly declined, as well as every other of its former ſources of wealth; its foals, which are yet the beſt in Andaluſia, at three years old are deſtined for the cavalry; but ſome years ago there were no more than 600 mares in all its extenſive territory.

Some coarſe cloths, made from the 3000 arrobes of wool which it produces, ſome manufactories of linen, and about a ſcore of looms for making ribbons; theſe are the whole of the occupations it poſſeſſes for the induſtry of its inhabitants; and even for theſe they are indebted to the cares of a patriotic ſchool, and ſome beneficent individuals.

Half a league from Xeres is one of the moſt famous Chartreuſes in Spain, for its wealth and its agreeable poſition, within ſight of Cadiz. Such as admire the fine arts reſort hither to view the beſt works of Turbaran, and ſome by the inexhauſtible Luce Giordano. The ſilent inhabitants of this delightful aſylum almoſt extort forgiveneſs of their opulence, and pious idleneſs, by their tender ſolicitude for the two moſt intereſting periods of life. They are beginning to educate thirty poor children belonging to the neighbouring town, and a dozen of old men incapable of labour paſs with them tranquilly the ebb of life.

Two great leagues thence the town of Arcos is ſituated. To reach it you ford through the Guadalete, the river of oblivion of the ancients. Arcos is a town of two thouſand five hundred houſes, ſituated in the centre of the moſt fertile country, ſurrounded by orange-trees; it is built on an inacceſſible rock, whence are perceived the mountains of Ronda, Medina, Sidonia, and Gibraltar. The Guadalete partly encompaſſes Arcos, and rolls its noiſy courſe through the bottom of a deep and crooked valley, where it ſeems to force for itſelf the channel poets feign.

From the Chartreuſe of Xeres to the modern town called *Ile de Leon*, you travel four leagues without ſeeing even a cottage. After fording the Guadalete, you enter the vaſt plain wherein the battle was fought which put an end to the empire of the Goths, and placed Spain for ſome centuries under dependance on the Arabs, and at the ſame reach the confines of the ancient Bœtica. This combination of objects, which recall the ingenious invention of fable, and great achievements of hiſtory, the bounty of nature, and the ingratitude of thoſe who ſo ill repay her gifts, give ſtead to deep reflection. One is induced to compare the boundleſs field of imagination with the narrow limits that idleneſs preſcribes to induſtry; ſeducing chimeras to lamentable reality; one admires the illuſtrious authors of theſe wonders, and pities the modern actors on ſo fine a ſtage who play ſo ill their parts. But we approach now the theatre of commerce, Cadiz lays before us.

The firſt proſpect of its bay is from the top of a hill midway between Xeres and Port St. Mary. Thence you view the whole of the bay, as if upon a map. You diſtinguiſh clearly the two points which form its mouth, the fort of St. Sebaſtian on the one ſide, and the town of Rota on the other, Cadiz laying in front. You ſee the narrow tongue of low land which divides that town from the Ile de Leon; the irregular figure of the bay as it inclines to the Carrack, Port Real, and Port St. Mary.

Thus muſt chains of mountains, towns, and the ſinuoſities of rivers, have appeared to thoſe hardy rivals of the inhabitants of the air; thoſe ærial travellers, whoſe brilliant intrepidity has of late years excited our wonder.

From Xeres you have the choice of two roads, that which goes round the bay by land, and that which proceeds ſtraight to Cadiz croſſing the bay. If you decide in favour of the firſt, after paſſing the Chartreuſe, you travel through woods of pine, the proprietors of which, by their early felling, prevent them growing to that maturity which might fit them for the navy. Beyond theſe woods you diſcover the pretty towns of Port St. Mary and Port Real. You leave them on the right, as well as the Guadalete, which a little lower divides into two branches. One empties itſelf in front of the bar of Port St. Mary; the other directs its courſe towards Puerto Real, and takes the name of St. Pedro. You afterwards perceive the ſuperb modern road which leads to Cadiz; this little river is croſſed over the bridge of Suazo, the oppoſite ſide of which is the Iſle of Leon, thus called on account of the portion of land which compoſes it, being ſurrounded by a very ancient navigable canal, which is from 22 to 24 feet deep at high water. In another place I ſhall make further mention of this road and of the Iſle of Leon.

If in going to Cadiz you determine on croſſing the bay, you take freight in one of the large boats, whoſe owners peſter you with their offers of ſervice on your reaching Port St. Mary, and in leſs than an hour are tranſported to the quays at Cadiz.

Port St. Mary is ſituated nigh the mouth of the Guadalete, which by driving its ſands into the bay, forms a bar not paſſed without ſome danger, particularly in winter. The boatmen, whoſe intereſt it is to keep the paſſengers alive to fear, never fail exaggerating the danger; and in the moment when it is moſt imminent, recite a prayer, which they afterwards beg payment for; but the moſt timid paſſengers, nay even the greateſt devotees, have more confidence in the ſkill of their conductors than in the efficiency of their prayers.

CHAP. VI.—*Deſcription of Cadiz, its new eſtabliſhments, its port.—Of the Carrack.—Of the Iſle of Leon, the magazines, the dock-yards.*

WHEN I arrived at Cadiz, in 1785, O'Reilly was governor, or rather reigned there; and it muſt be allowed that under his *reign* this town experienced changes for the better of every deſcription. Cadiz owes to him its embelliſhment, augmentation, and cleanlineſs; I cannot add its ſecurity. At that time murders were very frequent in the city, and ſince then are not leſs common.

Under his active management the old houſes were pulled down, to give place to new ones regularly built; the ſtreets were paved, made ſtraighter, and conſtantly kept clean, and the waſte ground was covered with new houſes. He may be reproached even with exceſs of œconomy with reſpect to this ground. In ſeveral triangular ſpaces houſes were built which, without convenience for thoſe who inhabited them, ſeemed to have no object but that of incommoding their neighbours. He even endeavoured to extend the confines of the city by gaining ſpace from the ſea. The ground upon which the cuſtom-houſe ſtands, and that adjacent, was formerly covered by the watery element, but this was anterior to his adminiſtration. He meditated another project of the ſame kind.

He wiſhed to take poſſeſſion of the ground of the Alameda, a walk by the ſea ſide near the bay, the trees of which bear the viſible marks of its neighbourhood. His intention was to build there, and to lengthen the ſpace, by raiſing to a level with it that part of the ſhore which runs towards the inner part of the city; and on the outer bank of the new encloſure he intended to plant a new alley of trees. But to effect this kind of miracle, funds were neceſſary, and ſtones and rubbiſh ſufficient to fill up the extenſive ſpace he projected to gain from the ſea.

He

He beſtowed much attention on the embelliſhment of the neighbourhood of the gate on the land ſide, which was formerly covered with briars, and ſerved as an aſylum for robbers. Under the adminiſtration of one of his predeceſſors, gardens were laid out, and ſeveral houſes built there. At the time of the diſpute relative to the Falkland Iſlands, the puſillanimous governor fancied the place in danger, and the enemy cloſe to the gates, entrenched behind theſe weak experiments of induſtry, and in conſequence deſtroyed the houſes.

Under the adminiſtration of the Count de Xerena, predeceſſor to Count O'Reilly, it was intended to rebuild them; but they did not acquire an agreeable form till the latter became governor. He extended the cultivation of the iſthmus from the ſide of the great road which leads from Cadiz to the iſland of Leon, and created a garden (notwithſtanding the ſand) as agreeable in appearance as a ſoil of ſuch nature would allow, which he incloſed with an open railing. His example was imitated by the neighbours; ſo that for a quarter of a league from the land gate the road is bordered with ſimilar fences, which, by their uniformity, ſeem to belong to the ſame proprietor. The neighbourhood of the ſea, the heat of the climate, and the nature of the ſoil, the ſand of which it is not poſſible to cover with good earth above a certain height, are viſible in the produce of this cultivation; but it is not the leſs delightful to ſee verdure, and gather flowers and fruits in a ſoil which ſo many circumſtances ſeem to condemn to ſterility. While walking in the garden of the aſſeſſor Mora, and that of the governor, which joins it, and viewing all the rich productions of Andaluſia, the vines, mulberry and olive trees that flouriſh there, we forget the nature of the ground on which we tread, and the element by which it is almoſt ſurrounded. In time, theſe environs of the land gate were to form a kind of ſuburb; and a church was already built, a quarter of a league from the city, for thoſe who reſided in that neighbourhood.

But theſe wonders very ſhortly ſurvived the adminiſtration of their author. The ſand has reſumed its empire over the diſputed ſpace, and the traces of the garden of O'Reilly, and that of the aſſeſſor Mora, are now ſcarcely diſcernible.

But nothing does more honour to the zeal, underſtanding, and humanity of Count O'Reilly than the Hoſpitium, which owes to him, if not its firſt eſtabliſhment, at leaſt the admirable form given it in the courſe of the year 1785. Within the ſame edifice ſuccour was afforded to every claſs of ſubjects who had claim either to the care or inſpection of government; to the aged of both ſexes, to incurables, vagabonds, proſtitutes, the inſane, and children of both ſexes whom their parents were incapable of maintaining. Each claſs was placed in ſpacious and well aired apartments. Every perſon was furniſhed with food and employment according to his age and ſituation. Poor families found an aſylum there, nor did the number of them alarm the beneficence of government. However, to prevent abuſes, the commiſſary of each quarter was obliged to preſent weekly to the governor, an account of all the perſons of both ſexes entitled to charitable aſſiſtance. The governor examined the ſtatement, and wrote his directions in the margin. In the ſeventeen diviſions of which Cadiz was compoſed, there were fourteen in which not one perſon found a difficulty in gaining a livelihood, or was deprived of the ſuccour neceſſary to render life ſupportable; and before the diſgrace of O'Reilly, theſe benefits were extended to the whole city.

The good order conſtantly maintained in this inſtitution was the fruit of his continual inſpection. He was well ſeconded by ſeveral citizens of diſtinction, who, ſome from ſentiments of humanity, and others to make their court to him, divided among themſelves the direction of the different apartments of the hoſpital. Their preſence ſeemed to inſpire reſpect and confidence. They reſtored ſerenity, and brought back hope and

joy. Proſtitutes and the inſane were the only perſons deprived of liberty; individuals of every other claſs went out in companies at certain hours. None but the aged and infirm were exempt from labour. Such as were capable of working were moſtly employed in carding, ſpinning, and weaving the cotton imported from the colonies of America. In 1785, there were more looms, &c. than hands to employ them. The exceſs of ſtuffs manufactured above what were ſufficient for the conſumption of its inhabitants, was ſold to increaſe the funds of the eſtabliſhment. To thoſe which exiſted before M. O'Reilly became governor, he added the produce of certain pieces of ground belonging to the city. In addition to theſe the charity of the citizens was evidenced by conſiderable contributions. Since the retirement of O'Reilly, this admirable eſtabliſhment has ſomewhat degenerated, and in ſucceeding years beggars again made their appearance.

It would have been difficult to find ſucceſſors equally active with him, or who ſhould have taken ſo much delight in the proſperity of his inſtitution. O'Reilly had a peculiar talent of making every circumſtance and every paſſion ſubſervient to his purpoſe. His deſpotic character was dreaded. The mere expreſſion of a wiſh was to thoſe around him equivalent to a command; while by his inſinuating manners he engaged the inhabitants of Cadiz, who were of all people thoſe the leaſt devoted to him, to contribute their time, their carriages, and their horſes, to objects which were nominally for the public good, but which were frequently no other than the offspring of caprice. Cadiz owes alſo to him the repair of the road which leads to Leon. A Frenchman was charged with the work, (Du Bournial,) an engineer for bridges and highways, whom he had ſent for from France to employ in his military ſchool of *Port St. Mary*. This road, which is on leaving Cadiz a quarter of a league in breadth, narrows ſo conſiderably at the diſtance of a league from the town, that the ſea at high water bathes both ſides of the cauſeway on which you travel, which has the appearance of a mole protruded by the bold hand of man on the abyſs of the ocean. Du Bournial raiſed this road, rendered it more ſolid, and ſhorter, and acquired a title to the gratitude of the inhabitants of Cadiz.

O'Reilly was deſirous of employing him upon a work of more conſiderable magnitude, or at leaſt of greater parade. It is well known that Cadiz is deſtitute of good water. As a bad ſubſtitute they uſe an unwholeſome brackiſh water, which they draw from wells that are ſupplied by the rain, which is conducted into them from the internal court of each houſe. The remainder of the water which they conſume is collected in *azoteas*. Theſe are flat roofs, in the form of a terrace, with which almoſt every houſe in Cadiz is furniſhed, I may ſay adorned, and ſerving as well for a promenade and obſervatory for the inhabitants; ever anxious and upon the look out for thoſe objects the darling of their hopes.

From theſe *azoteas* the rain-water runs through pipes into the *arrive* or ciſtern, which occupies the interior part of the houſe, not covered over, and thence into a well in the corner of the court. For the ſameneſs of the neceſſities of the inhabitants (the reſult of their poſition) has occaſioned in this city a perfect uniformity in the figure and diſtribution of almoſt all the buildings.

Theſe then are the only reſources of the inhabitants for obtaining the water neceſſary for their domeſtic wants. As for that which they drink, they are obliged to fetch it from the ſprings of Port St. Mary, which however in dry weather are not competent to the demand upon them, notwithſtanding 96,000 piaſtres (16,000l.) be annually paid for the precarious contribution they afford; a real inconvenience for a town ſo populous, a port which is the place of departure of ſo many merchant veſſels and ſhips of

war. O'Reilly, in order to remedy this inconvenience, projected the plan of conducting a ſtream of freſh water from the heights of Medina Sidonia, a diſtance of eleven leagues. Already had he calculated with the engineer du Bournial that the completion of this canal would not coſt more than two millions of piaſtres (333,000l.); and as early as the month of Auguſt 1785 more than half the ſum was ſubſcribed. Du Bournial had ſurveyed and taken the level of the whole extent, and ſketched out the whole of the plan. He had diſcovered the traces of an ancient canal cut by the Romans for the ſame purpoſe, the bed of which was to ſerve in great meaſure for the new canal. Many detractors oppoſed this brilliant enterprize; but in ſpite of them it was begun: it did not, however, proceed more than half a league. The diſgrace of O'Reilly put a ſtop to the project, and the inhabitants of Cadiz continue to fetch their water from Port St. Mary.

Another project of equal magnitude, but of far ſuperior utility, has latterly been completely executed. I ſpeak of the work deſigned to ſhelter from the rage of the ſea that part of the city of Cadiz which lays towards the ſouth between Fort St. Sebaſtian and *Matadero*. It is doubtleſs owing to its ravage that a great part of the iſland upon which the city is built has been worn away. In the ſeventeenth century it deſtroyed a number of buildings; and at that time ſome ſuch plan was contemplated as latterly has been put in execution. At the beginning of the preſent century a kind of rampart in ſhape of a dam was oppoſed to the ſea, but it had been ſo much undermined, that Cadiz at high tides, and in ſtormy weather, was liable to imminent danger. It became neceſſary every year to repair the injuries committed by the waves; and the engineers employed on the repairs were no ways intereſted in drying up the ſources of ſuch a lucrative occupation. Under the reign of Charles III. the government at length thought ſeriouſly of ſecuring Cadiz from the danger with which it was menaced. From among a many plans tendered them in 1786, they adopted that of Don Thomas Manoz, an officer of diſtinction, and a man of merit, who deſerves to be ranked among men of genius, and the benefactors of his country. His plan conſiſted in forming along the wall a ſort of beach, ſolid, and in *talus*, againſt which the waves might ſpend their firſt ſtrength, and afterwards flow calmly on to the foot of the city. In the firſt place, enormous pillars have been built in advance to divide the waves, which afterwards ſtrike upon the artificial beach behind them. It is founded on large flint ſtones, which it required great pains to fix with any ſolidity in the ground, and which are joined together by a kind of cement that hardens in water. This work was begun in 1788, and was finiſhed in three years, notwithſtanding the work could only be carried on at low water from the beginning of May to the end of September. The happy reſults of the expedient are daily witneſſed. The waves no longer reach the top of the wall, or approach it but in a gentle manner; whereas before the ſhock of them was ſo violent, that the neighbouring buildings not only felt it, but were inundated by them, the ſpray flying over the top of the cathedral. The work is ſaid to have coſt fourteen millions of piaſtres (2,333,000l.); but it was impoſſible for the Spaniſh government to have laid out money to greater advantage, or in a more honourable manner. The ſea oppoſite to the ſhore thus threatened has retired in proportion to its efforts on the ſouth ſide, ſo that certain parts of the beach are dry where formerly veſſels uſed to ſwim *.

The bay of Cadiz is ſo extenſive that there are diſtinct ſtations for different ſhips, according to the places for which they are deſtined. In front, but at a certain diſtance from the town, thoſe veſſels are moored which arrive from European ports. More to-

* It is with pain we underſtand that the ſucceſs of the works at the port of Cadiz is not ſo laſting as could be deſired.

wards

wards the eaſt, in the canal of Trocadero, the veſſels employed in the South American trade are moored and unrigged. At the bottom of the canal is ſituated the pretty borough of Port Real, and on its banks are the warehouſes, arſenals, and dock-yards for merchant veſſels. The entrance of *Trocadero* is defended by two forts, one called *Matagordo*, upon the continent; the other, *Fort Louis*, built by *Duguay Trouin*, on a little iſland viſible at low water. The fire from theſe two forts croſſes that of one of the Puntales on the oppoſite ſhore. You are conſequently expoſed to the fire of theſe batteries in ſailing from the great bay to that of Puntales, at the bottom of which the veſſels of the royal navy when diſarmed are moored, cloſe to the magazines. The great ſpace theſe occupy, and which land and ſea diſpute with each other, is waſhed on the weſt by the river Sancti Petri, and is known by the name of the *Carrack* (la Caracca). The court of Spain rigorouſly interdicts the admiſſion here of any ſtrangers. The governor replies to any addreſs for ſeeing it, that it is not allowed without a formal order from the King. However there are means of doing without it. You may go to the iſle of Leon, a modern town, begun about the middle of the laſt century, and which has increaſed prodigiouſly in ſize within ſo ſhort a ſpace of time. In 1790 there were 40,000 communiants, a tolerably certain baſe in Spain for calculating the population of a place. Its principal ſtreet is full a quarter of a league in length, and has a good appearance, in ſpite of the bad taſte with which its houſes are uniformly decorated. The iſland of Leon, however, reſembles but little the other towns of Spain. There reigns in it an air of cleanlineſs and comfort. It has a well furniſhed market, and a ſpacious ſquare, regularly built. The college of marines has been transferred from Cadiz to the iſle of Leon, in the interval of the completion of the new building that is in hand for its reception at the new colony of *San Carlos*, adjoining the Carrack, where is to be united in one place all that belongs to a perfect eſtabliſhment of marines.

The iſle of Leon is ſeparated from the Carrack by a baſon nine hundred feet long, by ſix hundred in breadth, whence flow two canals, one proceeding to ſea, the other to the Carrack. From this city, acroſs an arm of the ſea, to the Carrack is about a quarter of a league. You may gain admittance without much difficulty if in company with ſome privileged perſon, and ſurvey the contents of its arſenals. The lodgings of the galley-ſlaves, and the rope-yard, are worthy of admiration; the building is ſix hundred yards long, and has as good an appearance as that of Breſt. Thoſe who have compared the cordage and cables of the principal dock-yards and magazines in Europe, affirm that in this reſpect the navy of Spain is not inferior to any, and that its cordage is better made and more durable from this circumſtance, that in combing the hemp all the towy part others leave in is taken out, and made uſe of in caulking; whence reſults the double advantage of having more ſolid cordage and better caulking materials for veſſels.

Until lately the Spaniards imported their hemp from the north, they will very ſoon be able to do without the aſſiſtance, in this article, of any other nation. The kingdom of Granada has for ſome years furniſhed them with the greateſt part of the hemp they uſe; they likewiſe receive ſome from Arragon and Navarre.

The warehouſes contain a great quantity of ſheets of copper; but hitherto they are all brought from Sweden or Trieſte. The Spaniards do not yet know how to refine copper well enough to uſe that from Mexico in bottoming their ſhips. Their firſt adoption of this practice was at the beginning of the American war. A few years ago the court eſtabliſhed flatting-mills at Ferrol, which it is likely are not yet in full activity. It is a matter of aſtoniſhment that an invention of ſo much utility ſhould not have been ſooner adopted in a country poſſeſſing a navy, manufactories of every deſcription, and at leaſt the outlines of all the arts. The reaſon is that in Spain almoſt every thing, even at preſent,

preſent, proceeds but ſlowly, that the moſt beneficial innovations, generally badly patronized, are oftentimes oppoſed with all the obſtinacy of prejudice, with all the bitterneſs of envy; and that the government itſelf ſees its power limited by the paſſions of thoſe who uſurp and abuſe its confidence.

In ſpite of theſe obſtacles however, modern times diſplay many ſucceſsful plans reſulting from the perſeverance of the inventors, and the deſpotiſm of neceſſity. The work of Don Thomas Munoz at Cadiz is a proof of this. The ſame port exhibits a ſecond. Little more than twenty years ago, veſſels of war were neither built here nor refitted, and when it was found neceſſary to careen a ſhip, it was uſed to be affected on pontoons. M. de Valdis, when ſub-inſpector of the Carrack, recommended the plan of building a dock; and, when raiſed to the ſituation of miniſter of the navy, cauſed it to be put in execution. The nature of the ſoil ſeemed to render the project impracticable. It is a ſort of clay which eaſily gives way, ſeemingly participating in the mobility of the element which ſurrounds it, and with which it is ſaturated. It was in the moſt elevated part of this ground, that the firſt baſon was begun in the month of Auguſt 1785. At that period I ſaw the foreſt of piles driven, upon which a bed of ſtone was to be laid to give the baſon a ſolidity, againſt which every thing ſeemed to conſpire. The engineers who directed the works ſcarcely looked for ſucceſs; their purpoſe ſeemed to meet new obſtacles daily. Art and perſeverance at length triumphed over every difficulty, and in the year 1787, inſtead of one baſon at the Carraque, there were two for the building of veſſels of ſixty-four guns. At the preſent moment there are three, two of which are in full activity.

We muſt not forget to obſerve, that there is a ſchool for pilots at Cadiz, a naval academy, and a very ſubſtantial obſervatory, extremely commodious and well furniſhed with excellent inſtruments. It was for a long time under the direction of Don Vicento Tufino, lately dead, who obſerved the tranſit of Venus in 1769.

It is farther a difficult matter at preſent to find a more complete eſtabliſhment of marines than that at Cadiz.

CHAP. VII.—*Details relative to the commerce of Cadiz.—Treatment of the French at that port.—Privileges enjoyed by foreigners.—New tariff.—Smuggling.*

BUT what above every thing elſe eſtabliſhes the importance of Cadiz, that which puts it on a level with the moſt conſiderable cities in the world, is the immenſity of its commerce. In 1795 it could boaſt more than one hundred and ten proprietors of ſhips, and *ſix hundred and ſeventy* commercial firms, without including retailers or ſhopkeepers, or the French, who had been obliged to quit the city in conſequence of the war. A further idea of its trade may be gathered from a knowledge of the number of veſſels of different burthen which enter at its port. In 1776 this number was nine hundred and forty-nine, comprizing veſſels of all nations, of which two hundred and ſixty-five were French.

The war which ſucceeded diminiſhed for a time the extent of our relations with Cadiz; but, on the return of peace, it appeared rather to augment than decreaſe. Formerly no veſſels belonging to our nation entered Cadiz from any port of Europe north of Cadiz. Latterly we have become more familiarized with the northern ſeas; and many of our ſhips have been diſpatched from that port for Hamburgh and Amſterdam, and been freighted back afterwards for Cadiz.

The relations of this port with the reſt of Europe in 1791 were as follows: *one thouſand and ten* veſſels entered; of which 180 were Engliſh; 176 Spaniſh from America; 162 Spaniſh

162 Spaniſh from Europe; 116 French only; 104 Portugueze; 90 Americans; 80 Dutch; 41 Daniſh; 25 Swediſh; 22 Raguſan; 6 Genoeſe; 2 Venetian; 1 Hamburgher; 1 Ruſſian; 1 Auſtrian; and 1 Spaniſh from Manilla.

The 176 Spaniſh veſſels from the colonies with the veſſel from Manilla brought in gold and ſilver, coined or in bars, and plate to the value of 25,788,175 hard dollars, equal at 4s. 6d. each to 5,800,339l. 7s. 6d.

The trade from Cadiz to Spaniſh America continued at that period to be very conſiderable. In the courſe of that year 1791, 35 veſſels ſailed thence for the Weſt Indian iſlands, 20 for Vera Cruz, 16 for Montevideo, 7 for Lima, 8 for Honduras, 5 for Carthagena; in all 105.

The French ports which trade to Cadiz are *Marſeilles*, *Havre de Grace*, *Rouen*, *Morlaix*, *St. Malo*, *Bayonne*, *Bourdeax*, *Nantes*, and *St. Valery*. The gradation in which they are named ſhews the pre-eminence of the tranſactions of the different towns with this port. Before the Revolution, which will occaſion more than one modification of our relations with commercial Spain, Marſeilles exported to Cadiz, *communibus annis*, various merchandize to the amount of 12,000,000, in which ſilk and gilt works formed the principal articles. Woollen goods were the chief exports from Rouen and Havre de Grace. Morlaix and St. Malo ſhipped linens, which was alſo one of the principal articles of the trifling adventures from Nantes. From Bourdeaux and Bayonne little but flour and bacon was expedited; and from St. Valery cloths of the manufacture of Amiens alone.

The foreign houſes moſt numerous at Cadiz belong to Iriſh, Flemings, Genoeſe, and Germans; of the latter, the chief part are Hamburghers, who are much favoured by ancient treaties with Spain, and who, of quiet manners but adventurous and perſevering, are addicted to all branches of commerce. They made a good uſe of their profits; having eſtabliſhed among themſelves a ſociety for the relief of their neceſſitous countrymen.

The Engliſh and French have the ſmalleſt number of eſtabliſhments at Cadiz of any of the commercial nations, notwithſtanding which the extent of their commerce with this city is very conſiderable. Fifteen years ago there were fifty French firms at Cadiz, divided into five claſſes, according to the capital they employed or acknowledged. In the number of theſe there are ſome of great conſequence, for whom Cadiz is as it were another home, but who, far from loſing ſight of their native home, add doubly to the wealth of their country, by favouring the ſale of its productions, and returning afterwards with the reſult of their ſpeculations: valuable deſcription of coloniſts, which cannot be bound by too many ties to their country, but which ſeem of late years to have experienced diſcouragement, as well from the treatment which individuals have met with, the veſtige of which has not altogether been effaced by the peace of 1795, as by the concurrence of the native merchants towards the promotion of their true intereſts, by effecting for themſelves, what, for too long a period, they ſaw effected with ſucceſs by foreigners.

Beſides wholeſale dealers, there were at Cadiz about thirty French ſhopkeepers, which with the former made up a *nation*, an object of jealouſy with the Spaniards, and frequently perſecuted by the agents of government. This body poſſeſſed its funds, its meetings, and prerogatives, and ſometimes aſſembled in order to treat of the intereſts of their trade under the auſpices of the conſul-general of their country.

Cadiz contained about the ſame number of French milliners; and at leaſt a hundred artiſans of different profeſſions.

The

The ſpleen which the court of Madrid experienced on the ſcore of our Revolution was, even at the beginning of it, vented on the heads of all the French eſtabliſhed at Cadiz as well as in other parts of Spain. In the firſt place, in the month of July 1791, all foreigners, without particularly deſignating the French, were conſtrained to take an oath of excluſive ſubmiſſion to the ſovereign of the country; an oath, the purport of which was evidently to make them abjure their native land. The ſchedule which enforced this law obliged them *to renounce all privileges which they enjoyed as foreigners, and every relation, all union with, and all dependence upon the country in which they were born; and this under pain of being ſent to the galleys, of being abſolutely baniſhed the kingdom, or of confiſcation of property, according to the quality of the individuals, or the nature of their contravention of the law.* Thus much for foreigners domiciliated in Spain. As for travellers, known under the title of *tranſeuntes*, they were forbidden to remain at any of the royal reſidences, or *to exerciſe in any part of the kingdom any trade or profeſſion whatſoever, without expreſs allowance from court.*

A meaſure ſo ſevere on the part of an European power towards civilized nations is almoſt unexampled. One would have conjectured that the court of Morocco and its ſatellites had been tranſported to Madrid. Notwithſtanding this, Charles IV. is juſt and benevolent; and, whatever be ſaid of him, does not abhor the French. But Charles IV., the moſt tolerant of deſpots, had Florida Blanca for his grand vizier.

The publication of the ſchedule excited a general clamour. Moſt foreigners, (particularly the Engliſh, who were then in favour, or who rather at that time were dreaded, whilſt we ſeemed by no means an object of fear;) moſt foreigners, I ſay, eaſily procured exemptions and favourable hearing; the government acted with rigour only towards the real enemies againſt which it was iſſued. However, when put in force, it ſeemed ſo much encumbered with difficulties, that modifications took place even in favour of the French. Yet many ſuffered from it. Some bent before the blaſt; but the greater part did not pauſe between the loſs of fortune or their country; and France beheld the return of a conſiderable number of theſe eſtimable fugitives. The French who remained in Spain, either from the reſolution made of conſidering them as *tranſeuntes*, or, from their becoming ſuch in fact, were more than ever ſubject to the ſtricteſt vigilance. Government ſuffered the violation of treaties to their injury, and poſſibly encouraged ſuch infractions, practiſing them itſelf. Moſt of the privileges of the French were diſputed. In many places, particularly at Cadiz, the meetings of *their nation* were ſuſpended. They were, it is true, permitted afterwards, but with the reſtriction of their being held in preſence of the governor of the place; a reſtriction which annulled the grant. French merchants were in this precarious ſituation in Spain when our Revolution made ſuch progreſs as became alarming to the neigbouring ſtates. The throne was overturned, and the republic proclaimed. The horizon of Europe became more and more darkened, and already the thunder-cloud of war ſeemed ready to burſt over Spain; Count D'Aranda, then chief miniſter, made ſome attempts in a dignified, perhaps rugged manner, to avert the ſtorm. His young ſucceſſor, without profeſſing ſimilar principles, yet inherited his pacific diſpoſition. At that time I thought him ſincere, and ſince then have no reaſon to doubt his being ſo. In a few weeks I was ſatisfied of his ſincerity. An engagement to remain neutral was already drawn out, agreed to, and was on the eve of being ſigned, when that head was ſevered which could not but be dear to the court of Madrid. All negociation inſtantly ceaſed. I quitted the country without taking leave, but, before my departure, recommended the French whom I left behind, if not to the benevolence, yet to the juſtice of the Spaniſh monarch; and received the moſt ſatisfactory reply.

I did not apprehend that I ſhould ſcarcely have croſſed the Pyrenees, before my countrymen would experience one of the moſt violent perſecutions that national animoſity has ever produced. It is well known that even before the declaration of war, they received orders to leave Spain immediately; not giving them even time to adjuſt their affairs; that many were not able to bring away their cloaths; that all their property, furniture, and fixtures, and all the merchandize in their warehouſes was ſequeſtrated; and that for ſeveral weeks the ports of Spain were full of Frenchmen, proſcribed by orders, dragged from a monarch as juſt as he is humane.

A council was created under the title of *Junta de Repriſalias*, diſtinctly charged with all that related to the ſequeſtration of the property of the French exiles, and the indemnities to taken upon it by the King of Spain. In the ſchedule which eſtabliſhed this council it was argued, in order to palliate the ſtrangeneſs of the proceeding, that the ſame meaſure had ſeveral times been adopted *in the laſt century upon ſimilar occaſions.* But let us draw the curtain over theſe tranſitory injuries of rage and fanaticiſm. I ſhall not ſay that they have been expiated by victory; I ſhall only obſerve, that a ſincere reſtoration of concord ought to commit them to oblivion. Now that Spain knows her real enemies, and her neceſſary friends, ſhe will not reſtrict her juſtice to the ſimple reſtitution of their invaded properties. Let us hope that, without waiting for the concluſion of the treaty of commerce ſo often demanded, ſo long-expected, and the promiſe of which is repeated in our laſt treaty of alliance, the French will find no longer in her the jealous and malevolent demeanor of a rival, but, on the contrary, that reſpect which is due to an intimate ally, and be again inveſted with the peaceable enjoyment of their privileges. Perhaps the reader may be curious to know what are theſe *privileges.*

They are of long ſtanding, and formal; they were confirmed and extended by the famous family compact, now become a national compact. They have nevertheleſs been, (let us declare it, void of ſpleen, if it be poſſible,) they have nevertheleſs been ſcandalouſly infringed in almoſt every inſtance.

The greater part of theſe privileges are not excluſively enjoyed by the French. They take their date from that period at which the inertia of Spain made it neceſſary to call in the aſſiſtance of the capitals and induſtry of foreigners, and attach them to its ſea-ports by treaties which then were reciprocally advantageous, but which have become otherwiſe now that her drowſy fit no more continues.

The moſt ancient of theſe treaties was that of 1647 with the Hanſeatic towns. This ſerved as a model for thoſe ſince made with the Engliſh, Dutch, and French. It grants licence to the merchants of thoſe different nations to eſtabliſh commercial firms in Spaniſh ports; and to reſide there under the protection of their conſuls in ſome degree independent of the ſovereign, to form *a nation*, to have a ſeparate tribunal for the deciſion of diſputes relative to commercial matters, &c.

To theſe privileges the family compact, concluded at an epoch at which the two monarchs of France and Spain, without having ever ſeen each other, were animated with the moſt tender mutual attachment, and at a time that the policy of the moment preſcribed the ſtrengthening of thoſe ties, this family compact added to theſe privileges ſome peculiar to the French. Among other ſtipulations, it covenanted not only that Frenchmen and Spaniards ſhould be treated equally with the moſt favoured nations in the two countries, but alſo that the ſubjects of the one king upon the territory of the other ſhould be looked upon as natives, as far as regarded any right of importation or exportation, and enjoy equal facilities in trading, &c.

In practice, theſe privileges common to moſt foreigners are often nugatory; but, even before the French Revolution, they were with none more frequently ſet at naught than

than with the French, owing to their poſſeſſing more than other foreigners that ſpecies of induſtry which is importunate, and that marked ſucceſs which awakens jealouſy; owing to Spain, ever ſince ſhe has been occupied in the reſtoration of her manufactures, conſidering them as formidable rivals; owing to the French poſſeſſing an unconquerable diſpoſition, and a ſingular aptitude to ſmuggling; and, laſtly, owing to the ſame cuſtom exiſting between governments as individuals, of reſerving their fits of ſpleen for their beſt friends, while their politeneſs and attention are ſhewn to ſuch as are but indifferent to them, or whoſe intereſt they are deſirous to ſecure.

Thus, while Engliſh ſhips which, according to treaty, ſhould be ſearched upon their arrival at the ports of Spain, frequently elude this formality altogether, or are ſubject to very ſlight examination, thoſe of the French are minutely viſited; nay, oftentimes are ſubjected to a repetition of ſearch at their own expence, upon the ſlighteſt ſuſpicion of any thing contraband on board.

Thus, notwithſtanding by the ſame treaty no ſearch was to take place, except in preſence of the conſul of our nation, our veſſels were often viſited unexpectedly, and ſometimes without any notice being given.

Thus, although the family compact expreſſes in formal terms, that the French, in matters of trade, ſhould be treated on a par with Spaniards themſelves, this has almoſt conſtantly been demanded without ſucceſs, when our captains of ſhips have been deſirous of bringing ladings of wine and corn coaſtwiſe from one port to another in Spain. Certain conventions made poſterior to this pact, and deſigned to explain obſcure paſſages, left room for further litigation. Of this the ſmuggling of piaſtres in particular has become a very fruitful ſource. From an ambiguous paſſage in the convention of 1774, it was contended that the treatment to be uſed towards our captains of ſhips, on board of which piaſtres were ſmuggled, ſhould be the ſame as towards nations found guilty of contraband; that is to ſay, not only that the piaſtres became forfeited, with the ſhip, and remainder of the cargo, but the captain alſo became liable to impriſonment; ſo that we were placed upon a footing with the Spaniards in the rigorous puniſhment to which they are liable alone.

The two governments at length perceived the neceſſity of introducing more clearneſs into ſome of the ſtipulations relating to our commerce; and, on the 24th December 1786, they concluded a new convention, wherein every thing relaive to contraband is diſtinctly explained, and which limits the penalty upon detection to the ſimple forfeiture of the articles ſmuggled.

This convention, embracing no other objects than what bore reference to ſmuggling, the ſearch of veſſels, and ſome other objects of minor importance, it leaves room to wiſh for a treaty of commerce, which may become a principal ſource of future proſperity to our country.

This treaty becomes ſo much the more neceſſary, from the Spaniſh government having made many violent attacks on our commerce; with a view ſometimes of encreaſing the revenue, and at others of promoting the trade, and induſtrious habits of its own population. The principal of theſe it may not be amiſs to enumerate.

As early as the reign of Philip V., the privileges of a great number of Frenchmen were diſputed under pretext that they were not ſimply travellers, *tranſeuntes*; but had become domiciliated, and conſequently liable to be treated as Spaniſh ſubjects. In 1720 there even appeared a ſchedule, which circumſcribed with numerous reſtrictions the quality of *tranſeuntes*, (the only one which Spain, wearied with claims reſpecting foreign privileges, was any longer willing to allow;) numerous claims, arbitrary, and ſome-

times contradictory decisions, and an uncertainty among all foreigners, such were the consequences of this ambiguity.

In 1779, upon the representations of many corporations animated with the laudable desire of reviving industry in their country, and of banishing sloth and misery, government put in force anew an ordinance of the reign of Philip IV., which prohibited the importation of all *works compleated;* vague expression, to which the custom-house officers applied the most vexatious interpretation. In 1782, always under pretence of securing the prosperity of the Spanish manufactures, particularly that of silk, Spain made a new tarif (*Araned*), which considerably augmented the duties payable on most of our manufactures of luxury, and absolutely prohibited a great number. This tarif, and those prohibitions, were so vaguely expressed, that they left a wide margin to the malevolent caprice of the customs' officers. Hence the risks which our manufacturers ran in expediting, and our merchants resident in Spain in ordering goods, which, when they arrived at the Spanish custom-houses, were either detained to await the decision of government, or were not allowed to enter. Hence the failure of speculations, hence reiterated claims to which the Spanish government did justice rarely.

Some comparisons between the tarif of 1770 and 1782 will suffice to shew the enormity of the encrease of duties.

Plain, striped, and figured ribbon, were taxed at 240 maravedies per lb. They were augmented to 1530 gold spotted gauzes, were taxed at 48 maravedies per vara; and gauzes with silver flowers at 102. The tarif of 1782 raised the least to 153 maravedies, and some to 612 maravedies per vara.

Different stuffs, which embroidered with circles of spangles cost no more at the manufactory than 30 livres per vara, were subjected by the tarif to a duty of 96 rials, or 24 livres per vara. Had not these impositions a tendency to prohibit them entirely, or at least to encourage their fraudulent introduction?

Twenty other similar examples of malevolence, or fiscal avidity might be cited.

Spain did not confine herself to these injurious measures, she appeared more inclined to annihilate our manufactories, than to encourage her own. By a private arrangement in 1698 with Eminente, at that period farmer of the custom-dues at Cadiz, we payed but very moderate duties upon the importation of linen from Brittany; which served to place them on a level with those of Silesia, less perfect, but at the same time cheaper than ours, and on that account more attractive. The consequence was, that some of our linens paid no more than $5\frac{1}{4}$ per cent. on their value, whereas those of Silesia, of equal quality, paid from 10 to 12. We quietly enjoyed this concession, precarious it is true, on account of our having neglected to convert it into a right by having it inserted in our different treaties with Spain. We had little reason to expect at the close of a war in which we had been allied, and which ought to have drawn more closely the knot by which we were united, to be deprived in 1783 of a favour which gave encouragement to one of our most considerable branches of industry, and placed ours upon a level with all other foreign linens. We have frequently complained of this innovation, but constantly in vain.

The tarif of 1782, however, increased the duty of importation on all foreign merchandize; they have been afterwards so much augmented by different impositions, that some articles upon their introduction into the interior of Spain, pay as much as from 80 to 90 per cent.; and none less than 30. Since the treaty of peace at Basle, some abatement from this excessive rise on the taxes, has been made in our favour, but we have yet much to obtain. The tarif of 1782, even as it stands at present, is incompatible with the ready sale of the produce of our manufactories, and it is upon them principally that certain regulations made posterior to this tarif press heavily.

At firſt the exportation of all foreign cloth to Spaniſh America was prohibited, as if the manufactories of Spain were competent to its ſupply. The inconvenience of this prohibition was ſhortly felt. It was modified by a regulation which allowed a third part of the cloth exported by every veſſel, to be of foreign manufacture; a meaſure inſufficient and frequently eluded both through intereſt and neceſſity. It is conſequently a fecund ſource of fraud and litigation.

In 1789 Spain ſhut out from exportation to her Weſt Indies, all ſtockings, underſtockings, and ribbons, of foreign manufacture without exception, &c. &c. The ſame year, tardy reflection cauſed an exception to be made in favour of thread ſtockings, provided that they formed no more than one half of the cargo of that deſcription, on board each ſhip deſtined for the Weſt Indies; a reſtriction which rendered the exception nugatory.

Manufacturers of hats in foreign countries have alſo ſuffered materially from the prohibitory regime of Spain. Their importation into Madrid is rigorouſly interdicted and excepting caſtor hats all others are excluded from their American trade, and laſtly ſilk ſtockings are a principal object of their prohibition. All finiſh white ſilk ſtockings are ſhut out from her colonies, and even from the capital, but it is well underſtood that the Cataluns find an advantage in introducing our ſtockings, to which they apply the marks of their different manufactories.

For a long time our manufactories of Languedoc, of Niſmes particularly, had been accuſtomed to furniſh the ladies of Peru with ſtockings. For this they had looms conſtructed on purpoſe, in which they worked their ſtockings with broad clocks, embroidered in different colours; but the Spaniards imagined themſelves competent to the ſupply of the Peruvian ladies according to their taſte. They ſet up ſimilar looms for the manufacture of ſtockings, and flattered themſelves at firſt with rivalling, afterwards of entirely ſupplanting, our manufacturers; when all at once their government abſolutely prohibited the admiſſion of our Peruvian ſtockings. Our manufacturers of Niſmes thus found themſelves overſtocked with an article which had no other market than Peru. They had even ſhipped a large cargo for Cadiz, which was thrown on their hands. In vain, in 1792, did they appeal to the good faith of Spain. They repreſented the immenſe loſs with which they were threatened. Their ſtatement ſhared the diſfavour with which at that period we began to be treated. At the inſtant of the rupture there were two or three hundred thouſand dozens of theſe ſtockings in a ſtate of ſequeſtration in the cuſtom-houſe at Cadiz.

It will be worthy the equity of the Spaniſh government, it will but be conſonant with the good intelligence ſubſiſting between the two nations, now more cloſely allied than ever, to interdict mutually, for the future, ſuch prohibitory regulations; ſince taking thoſe by ſurpriſe, on whom the injury falls, it may eventually occaſion their ruin. Doubtleſs every government has the right to exert all its means for the encouragement of the commerce and the induſtry of its ſubjects; but where wiſdom marks their conduct, they refrain from thoſe ſudden meaſures which carry the appearance of perfidy, and the infallible conſequences of which are the alienation of the confidence of all commercial nations, and the furniſhing aliment and excuſe for ſmuggling.

Smuggling, the name of which alone excites alarm in the Spaniſh government, has no wider field for its exertions than that afforded by the port of Cadiz. It becomes naturalized in every part where prohibitions are numerous; the temptations to break through them, frequent and highly ſeductive, particularly where the profits which reſult from contraband are ſufficiently large to bear the ſharing of them, with thoſe who being but meanly paid for preventing it, gain much more by connivance with the ſmuggler.

gler. Hence in general it has no agents more active or more faithful than the underſtrappers of the cuſtom-houſe. That of Cadiz is under the direction of an adminiſtrator, who in general is very ſevere. Not ſo much can always be ſaid of the eight inſpectors, or *Viſtas*, who are ſubſervient to him, and whoſe function it is to examine all merchandize that is imported or exported, to value them, and tax them according to this valuation. One readily conceives, how arbitrary all theſe operations muſt be, one knows the abundant reſources of fraud, eſpecially where its inſpectors are accomplices. All the tax makers of Europe may take a uſeful leſſon in this reſpect from Cadiz. The rigour of the adminiſtrator is ineffectual againſt the ſtratagems of ſo many agents conſpiring againſt him. In 1785 this place was occupied by a man as rigorous as virtuous, *Don Franciſco Vallejo*. The abuſes of which he complained, but did not repreſs, occaſioned the deputation of a purgatory commiſſion. The avidity and the infidelity of the clerks of the revenue were puniſhed; and the cuſtom-houſe of Cadiz was regenerated. Every thing was to aſſume its due order. Smuggling was at its laſt gaſp, expiring beneath the laſh of authority, and the Argus-care of vigilance. Theſe brilliant ideas, however, were fallacious; ſhortly after *Vallejo* was replaced by *Don Jorge Franciſco Eſtada*, a ſtill more rigid director, if ſuch could be, than was his predeceſſor. But ſmuggling is a plant which takes ſuch deep root in the ſoil in which it is naturalized, that although it be lopped, nay felled both branch and ſtem, its root will yet give ſuckers. The ſmuggler keeps at a diſtance, and conceals himſelf at the critical period. As ſoon as it be paſſed, intereſt takes up anew her accuſtomed habits, and cupidity reſumes its audacity. In ſpite of the rigid Eſtada; this was the condition of ſmuggling in 1793.

If ſince then it be diminiſhed, it is owing to their being leſs opportunities for its manifeſtation. The long reſidence of one of our ſquadrons at Cadiz, could not fail to nouriſh it; but it proſpers highly only when commerce is in its full activity, and the trade of Cadiz ſuffered greatly from the war with us. It ſuffered ſtill more from that with England, but it is about to reſume its ancient extenſion, and contraband to make up for loſt time.

Cadiz is indiſputably the moſt opulent and the handſomeſt city in Spain. Notwithſtanding it be circumbſcribed in ſuch a manner by its poſition as to prevent its being enlarged, its population in 1800 was 75,000. The horrible epidemy of the ſucceeding year diminiſhed it a fifth part. In order to find ſhelter for ſo large a number of people upon ſo ſmall a ſpace, they have been obliged to be great œconomiſts of their ground: hence all the ſtreets of Cadiz, with the exception of *La calle ancha*, are narrow, and generally dark, owing to the great height of the houſes; but the city is remarkably clean, well paved, well lighted, and ornamented with handſome ramparts, which ſerve for promenades. The neighbourhood of the ſea renders the heat here much more tolerable than at Madrid.

The warehouſe of the wealth of both worlds, Cadiz abounds in almoſt every thing. Excepting water, all the requiſites of life are here to be found; and all its amuſements at the theatre, in the vicinity of verdant meadows, and well cultivated land. Thoſe amuſements, however, which are the reſult of a well cultivated mind, might here be ſought in vain; enjoyment, in the moſt rigorous ſenſe of the word, abſorbs here all the faculties; and calculation, all thoſe of the underſtanding. The one ſpeaks for itſelf and finds its apology in the climate. The other is the reſult of a concurrence of circumſtances to which Cadiz principally owes its importance and proſperity.

CHAP.

CHAP. VIII.—*Induſtry of Cadiz and its neighbourhood.—On its linens.—Its ſalt pits.—Of the bay of Cadiz.—Road from Cadiz to Chiclane; from Chiclane to Algeſiras.—Obſervations on agriculture in Spain.*

ALTHOUGH commerce either legitimate or fraudulent abſorb almoſt all the capital and attention of the inhabitants of Cadiz and its neighbourhoood, yet are not manufactures entirely neglected. At Cadiz there is a ſcore of looms for ribbons and ſilk netting, which are ſeldom at work, but which have an immenſe ſale of their pretended produce. It will be gueſſed that the chief occupation of theſe manufacturers is that of affixing their mark to foreign goods. Thus it is as well that ſtockings from Niſmes are ſhipped as Spaniſh manufactures for their Weſt Indies.

At Port St. Mary at the iſle of Leon, at Xeres there are manufactories of ſtained linens which have made great progreſs for ſeveral years back. Theſe linens and thoſe of Catalonia are the only ones allowed to be exported to America; a judgment of the extent of ſmuggling in this article may, however, be readily formed from a compariſon of the quantity ſent to America with the whole theſe looms are capable of furniſhing.

At Port St. Mary there is a wax bleaching houſe, through which all foreign wax intended for America is obliged to paſs. But its intervention is almoſt always eluded by the payment of the two ducats per lb., which is its demand for bleaching.

The Spaniards were once on the eve of producing at the Havannah all the wax requiſite for the conſumption of their colonies. Upon the ceſſion of the Floridas to the Engliſh in 1763, ſome Spaniſh coloniſts who withdrew to Cuba carried with them a number of hives. The bees encreaſed prodigiouſly in this new country to which they had fled as I may ſay for refuge from the conquerors; like tribes among men, who eſcaping from perſecution leave their native ſoil, and bear with them away their riches and their arts. But in the planters of the Havannah they found new perſecutors. Intimidated by the loſs their ſugar plantations experienced from theſe new gueſts, they kindled fires to drive them away. This ſcheme ſucceeded ſo well that Cuba, forſaken by the bees, could no longer ſupply any honey, and Spaniſh America was again obliged to receive for her conſumption the wax of Barbary, of Poland, and Hanover.

It will be aſked if any ſenſible diminution of the trade of Cadiz has taken place ſince 1780, as was predicted by the jealous ſpleen of its inhabitants? There has not. Theſe predictions did not then wear the appearance of likelihood. Cadiz is ſo well ſituated, ſo rich, has ſuch fixed poſſeſſion of the trade to the Spaniſh Indies, that for a length of time to come ſhe may brave the competition of any other port. Nevertheleſs, the peculiar ſituation of Catalonia and Valentia has been of material advantage to them, particularly in 1789. Government a little previous had made a regulation, that of every veſſel ſailing for America, national merchandize ſhould form at leaſt a third part of the cargo. Theſe ports were enabled to ſhip wines, brandies, ſilks and ſtained linens, and in theſe articles ſeemed to vie with Cadiz. But the manufactories of Catalonia and Valentia, not being competent to repeat ſuch conſiderable ſales, nor able to give ſuch long credits, or ſo eaſily to wait for returns, as the merchants of Cadiz, whoſe means are equal to their extent of trade; they ſoon regained poſſeſſion of their original ſuperiority.

One of the moſt conſiderable articles of export to India, and that on which the profit is moſt ſecure, is foreign linens.

They conſiſt of, and almoſt excluſively, thoſe of Brittany, Sileſia, and Ireland. In 1787 and 1788 it was noticed that the demand for thoſe of Brittany had rather increaſed than diminiſhed, yet in a ſmaller degree than thoſe of Sileſia. The exportation of thoſe of Ireland, the price of which is between that of the two others, is of late years greatly encouraged by the Britiſh government. Ours maintained themſelves only by their ſuperior quality; but even in this reſpect they find a formidable rival in thoſe of Sileſia, which are recently greatly improved.

The importance of the linen trade to Cadiz may be judged by the tables of its exportation of foreign merchandize in the years 1791 and 1792.

The whole ſum of its exports of this deſcription being 164 millions of rials, the article of foreign ſilks amounted to from 8 to 9 millions of rials; woollen goods to from 22 to 23 millions; and the article of linen alone to upwards of 100 millions.

At that period, the value of national merchandize exported was not equal to that of foreign, but by degrees it has come very near to it. In 1790 it ſcarcely exceeded 102 millions of rials. In 1791 and 1792 it was from 115 to 120 millions; of this above 60 millions conſiſted of ſilk articles; nearly 16 millions of woollen goods; and from 17 to 18 millions of linens. In 1792 it was the opinion of ſome that Spain was enabled to anſwer the demand of its colonies for fine and ſecond cloths, but not for that of an inferior quality. At this epoch her importation of foreign ſilk amounted to from 24 to 26 millions of rials.

But at once to give an idea of the extent of the commerce of Cadiz, it may be ſufficient to ſtate that in the year 1792 its exports to the colonies alone amounted to 270 millions of rials, and its returns thence to more than 700 millions!

The exiſtence of funds adequate to the ſupport of ſuch an immenſe buſineſs, will of itſelf ſecure to Cadiz for a length of time to come the enjoyment of mercantile proſperity.

The manufacture of ſalt is the moſt intereſting branch of induſtry in its neighbourhood. The ſalt-pits encompaſs a great part of the bay from the Puntal to Port St. Mary. This is their manner of working them.

In the firſt place, ſea water is introduced, by means of a little ſluice, into a large baſon, cut into wide canals of equal depth. It remains there a certain time, during which its lighter parts evaporate from the heat of the ſun. From this firſt reſervoir it runs into other canals not quite ſo deep, where it is further volatilized. The corroſive quality of the water remaining is ſo great, that the workmen can no longer remain with their feet uncovered without having them burned as if dipped in aquafortis. The water, in this ſtate, is let into a long and narrow canal, which runs by the ſide of a ſquare ſpace, divided into quadrangular compartments. From this canal, where it is anew expoſed to the action of the ſun, it is thrown with ſcoops into ſmall baſons where it receives the laſt heating, while the workmen continually ſtir it with long rakes. The ſediment it depoſes becomes as hard as ſtone, if it be ſuffered to aſſume that conſiſtence, and the workmen are conſtantly employed in detaching, taking it out, and pounding it. This continued agitation raiſes a white ſcum to the ſurface, which is carefully taken off, and which produces a much whiter, but a weaker ſalt than the ſediment. The reſt is laid in great heaps in the open air. The neceſſary quantity for the King's ſalt magazines is taken from theſe heaps, and paid for at the rate of two piaſtres the *laſt* of two hogſheads; but it is ſold again at a hundred and twenty piaſtres to all individuals except fiſhermen, who have it cheaper. The ſalt manufacturers diſpoſe of what remains as they pleaſe; and as the rains of the autumn threaten them with conſiderable waſte, they loſe no time in ſelling. The nations which purchaſe it are Sweden, Denmark, Holland, England,

England, and particularly Portugal. The cargoes ſhipped by the Portugueſe are moſtly ſent to the coaſts of Galicia and Aſturia, where this commodity is wanted, and which they have long had an excluſive privilege of furniſhing with their own ſalt. The fiſhermen from Saint Malo, Dieppe, and Granville ſometimes go to the bay of Cadiz to take in cargoes of ſalt for Newfoundland; and when our ſalt-pits fail, we take large quantities of it for our own conſumption.

Every individual who wiſhes to eſtabliſh one of theſe artificial ſalt-pits upon his own ground is at liberty to do it. He may ſell the produce to foreigners, but not to his countrymen, ſalt being in Spain, as in France, excluſively ſold for the King's account. Guards are placed round the heaps of ſalt, but do not always ſecure them from thieves and ſmugglers.

Cadiz, like the greater part of large commercial towns, contains but few monuments of the arts. Of late years, however, ſome buildings have been erected in a good ſtile, moſtly the work of ſtrangers. The former Italian opera has been converted into an aſſembly-room for reading the news, and other innocent recreation. It is called the *Comvrra*, and conſiſts of large rooms perhaps too much adorned. The cuſtom-houſe is a new building of tolerably handſome appearance. The national theatre is taſtily planned, and well laid out. The new cathedral, begun in 1722, had in 1769 coſt more than four millions and a half of rials, and will coſt two millions of piaſtres before it is completed. The wretched plan upon which it was begun will prevent its ever becoming a maſter-piece, notwithſtanding the expence of its erection and its ſumptuous decorations.

But the church of San-Antonio is a ſacred edifice, whoſe defects are ſtill more ſtriking; it was built as an ornament to the handſome ſquare of the ſame name, which it only ſerves to diſfigure.

In the church of the capuchins is an *Ecce homo* of Murillo, worthy of admiration, and ſome other maſter-pieces of his ſchool.

A foreigner arriving at Cadiz will conſequently enquire for the exchange of a commercial town ſo widely celebrated, and will not be a little ſurprized at underſtanding there is none. One would imagine that its inhabitants look upon the god of commerce in the ſame light as the ancient Germans were wont to look upon their god; as ſomewhat too majeſtic to be circumſcribed by walls of ſtone, ſomewhat that could be worthily adored beneath the vaulted roof of heaven alone. But the almoſt conſtant fineneſs of the climate explains this apparent ſingularity.

The ramparts of Cadiz are more an ornament to the town than a means of defence. Its fortifications are in good condition on the land ſide. The entrance into the bay would be but very imperfectly defended by fort St. Catherine on the one ſide, and fort St. Sebaſtian on the other. The fire of theſe two forts does not croſs. The one is placed on the continent oppoſite to Cadiz; the other is connected with the town by a very uneven ſandy ſtrand which is covered at high water.

The paſſage from the great bay to the bay of Puntalis is much better defended by the two forts *Matagordo* and *San Lorenzo*, placed oppoſite to each other, where the bay is contracted.

You croſs the ſtrait protected by theſe two forts to go to Chiclana, a place of amuſement, a delightful reſort for the inhabitants of Cadiz. For the poſition of their town, which is of very trifling extent for a population of 75,000 perſons, and almoſt wholly ſurrounded by the ſea, leaves them very little room for exerciſe. A quarter of a league from the gate towards the land barrenneſs begins, and maintains its empire over ſeveral leagues around, if ſome few kitchen gardens be excepted, and ſome orchards in the vi-

cinity of the isle of Leon, where artificial watering has remedied the natural barrenness of the soil.

To Chiclana, therefore, do the inhabitants repair to enjoy that verdure which they want at home. A favourable wind and tide carry them over in two hours. Leaving the isle of Leon to the right, and the Carrack to the left, you pass the bridge of Suaço, that joins the whole island of which Cadiz stands on the north side, to the continent. Under the arches of this bridge the bay becomes so narrow that, after passing them, it is nothing more than a wide canal, which soon afterwards separates into different branches. One of these leads to Chiclana, which is built on the right bank, commanded by several eminences, and particularly by the ruins of an old Mooriſh caſtle.

Here several merchants of Cadiz have country-houſes, which they embelliſh and ſurround with that verdure looked for in vain at their houſes in town. During two ſeaſons of the year Chiclana is particularly agreeable, the ſpring and autumn. The ladies of Cadiz, who unite the moſt enchanting graces of the Andaluſian women to thoſe poliſhed manners which reſult from their intercourſe with foreigners, the lovely *Gaditanas* naturalize here for ſome weeks all the enjoyments of the city; grand entertainments, balls, concerts, the whole diſplay of opulence, and the toilet's niceſt art. It is, as it were, a liſt opened by luxury and taſte, to which the deepeſt ſpeculators reſort to ſmooth the wrinkles of care and calculation, and be reminded occaſionally that there is ſomething in the world which is even more precious than gold.

From the eminences which command the valley of Chiclana, we ſee at one ſcope the iſle of Leon, Cadiz, the bay, and the ſea beyond it. The eye follows the courſe of the river Santi Petri till it falls into the ſea. Turning to the eaſt we perceive *Medina Sidonia*, whence comes the wind called *Solano* and *de Medina*, ſo dreaded by the inhabitants of Cadiz, from its pernicious breath, exciting both crimes and diſorders in the city. From the ſame point of view we embrace the vaſt plains of ſouthern Andaluſia, which we are about to paſs over in the way to Algeſiras and Gibraltar.

Algeſiras is fourteen leagues from Chiclana. I performed the journey on the ſame horſe in one day in ſummer, croſſing the moſt deſert country that can be found amongſt thoſe which are not quite uncultivated. It is true I croſſed plains, to avoid circuits, which would have led me through ſome villages. But will it be credited that in all this road, except Vejer on the right at a conſiderable diſtance, and Medina Sidonia on the left ſtill farther off, I ſaw no other human habitations than four or five groupes of thoſe miſerable cabins, called *Cortijos*, in which labourers lodge a part of the year.

For ten of theſe leagues I travelled over the duchy of Medina-Sidonia, through corn fields and paſtures. In no part could I diſcover the veſtige of an human habitation. Not an orchard, not one kitchen garden, not a ditch, nor a ſtile. The great proprietor ſeems to reign here like the lion in the foreſt, ſcaring away with his roar whomſoever might elſe ſeek his haunts. Inſtead of men and women, I met with ſeven or eight great herds of horned cattle and ſome troops of mares. On beholding them unreſtrained by the bridle or the yoke, wandering over an immenſe ſpace unbounded to the eye by encloſure or barrier, we may imagine ourſelves carried back to the firſt ages of the world, when animals, in a ſtate of independence, divided with man the dominion of the earth, found every where a property, themſelves without an owner.

Andaluſia is thus unpeopled in all thoſe parts wholly ſet apart to corn and paſturage. It has been divided into great poſſeſſions as far back as the conqueſt of it by the Moors. The principal Caſtilian nobleman, who then accompanied the conquering kings, obtained enormous inheritances in perpetuity, according to the fatal cuſtom introduced into almoſt the whole of the monarchy. The extinction of males in the great families

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is inceſſantly increaſing this complaint. Rich heireſſes carry with them their opulent portions into families not leſs opulent, ſo that the greateſt part of Spain may in time become the inheritance of the few families which ſhall ſurvive the reſt. As one individual cannot manage ſuch vaſt eſtates, the proprietors farm them out to different perſons, but this for three years only, or five at moſt. Another circumſtance concurs with theſe deſtructive cuſtoms to prevent agriculture from flouriſhing in Andaluſia. The land is divided into three portions; one is cultivated, another remains fallow, and the third is ſet apart to feed the cattle belonging to the farmer, and which he augments as much as poſſible, to reap what advantages he can from his ſhort leaſe. This is what gives an appearance of depopulation to vaſt diſtricts ſuſceptible of rich cultivation. The firſt improvement requiſite, therefore, in the agriculture of Andaluſia, would be to grant longer leaſes. The example of Catalonia, Navarre, Galicia, and the Aſturias ſhould ſerve as a leſſon. There the leaſes are for a conſiderable number of years, and cannot be broken by the caprice of the proprietors: every kind of cultivation is there in a flouriſhing ſtate; each farmer creates himſelf a little eſtabliſhment, and improves and fertiliſes the land which he is ſure to hold for a long time. What a contraſt between this ſtate of things, and that I had before my eyes for ten leagues after leaving Chiclana.

At the end of theſe ten leagues you begin to aſcend with great difficulty an enormous chain of high mountains, which do not lower again before they reach the weſtern part of the bay of Gibraltar. From their ſummit you perceive the famous rock of Gibraltar riſing from the boſom of the waves like the genius of the ſtormy cape deſcribed by Camoens. From this point the eye commands the fortreſs, the outlines of which appeared to me perfectly well defined in the ſerene horizon, and at the ſame time embraces the town of Algeſiras, the whole circuit of the bay, two little rivers which fall into it, the town of St. Roch, the ſlope which leads from this town to the lines, and the tongue of flat and narrow land that ſeparates them from Gibraltar; and at a diſtance to the right, at the extremity of the horizon, we imagine, rather than diſcover the coaſt of Africa.

CHAP. IX.—*Algeſiras.—Lines and Camp of Saint Roch.—Details reſpecting the floating batteries.—Appearance of Gibraltar.*

ALGESIRAS, the extremity of the fourteen leagues which ſeparate Chiclana from the bay of Gibraltar, is a town pleaſantly ſituated on a ſlope, which terminates in the ſea. A very little river (the Miel), which riſes in the neighbouring mountains, waſhes one of its ſides, and gently runs on to the ſea; upon its right bank is a little dock-yard, made uſe of during the ſiege of Gibraltar for the conſtruction of ſome of the gun-boats. At the time of the freſhes, it has water enough to float ſuch little veſſels to the ſea, which is diſtant but a few paces. Near this place are the ruins of the old citadel of Algeſiras, in which the Moors defended themſelves for ſome time after their city was taken. Algeſiras, as well as Saint Roch, was peopled at the beginning of the preſent century with Spaniards from Gibraltar, unwilling to live under the dominion of the Engliſh. In order to draw thither theſe refugees, privileges which it ſtill enjoys were granted to the town.

The little iſland of Palomas, called alſo the Green Iſland, is very little diſtant from the ſtrand of Algeſiras: it has a fort in which a company detached from the garriſon of Algeſiras does duty. This iſland is ſo fine and regular, that it ſeems as if traced by the art of man for the embelliſhment of a garden after the Engliſh plan.

Algeſiras is ſupplied with water in a ſplendid manner. It is brought to it from the diſtance of a quarter of a league by a new aqueduct built with hewn ſtone.

A packet-boat ſails twice a week from this town to Ceuta, a Spaniſh ſea port, at five leagues diſtance, on the coaſt of Africa, and directly oppoſite to Algeſiras. The paſſage is often made in three or four hours, but it ſometimes takes up nine or ten: the price is four rials; no great ſum to be tranſported from one quarter of the world to another.

The little port of Algeſiras is very confined in its commercial ſpeculations; it receives ſome cargoes of corn and brandy by Catalonian barks; and its exportations chiefly conſiſt in coal from the neighbouring mountains.

A great part of the two leagues from Algeſiras to Saint Roch is by the ſide of the bay. There are two little rivers which fall into it to be croſſed in boats, *El Rio de los Pulmones* and *El Guaraipe*, which might be taken for an arm of the ſea. After paſſing the latter, you leave the bay to reach the back part of the hill upon which the town of Saint Roch is ſituated, badly paved, and of a wretched appearance: the environs of which however are agreeable, and carefully cultivated.

Two years after the peace it continued to be no eaſy matter to paſs the lines of St. Roch. A formal order, the offspring of the puerile ſpite of Florida Blanca, interdicted all communication between Gibraltar and the Spaniſh continent. Notwithſtanding this, I obtained from the commander of the lines permiſſion to approach Gibraltar in company with a major of the place. We left *Buenaviſta* to the right, a large houſe upon an eminence, in which the Duke de Crillon, his aides-de-camp, and all their retinue lodged, and whence you have a view of Gibraltar, the two ſeas and the coaſt of Africa. At length we arrived on the ground of the famous camp of Saint Roch. Deſtroyed by peace, as other human eſtabliſhments are by war, it preſented nothing but a heap of ruins. We croſſed this ground diagonally to go ſtraight to the Mediterranean, and follow the coaſt to Fort Saint Barbe which forms the right of the lines: on preſenting the order of the commander, the great gate was opened to us which leads from the lines to the fortreſs: a petty officer beſides was ſent to watch rather than direct our motions. We noticed the traces of the works carried on during the ſiege, the trenches and epaulement thrown up by General Alvarez, and which were ſo much ſpoken of in the Madrid Gazettes*; the *tower*

* A witticiſm publiſhed at Paris on the ſubject, and during the ſiege of Gibraltar, inſerted in the firſt edition of M. Bourgoanne, and omitted in his edition of 1803, the tranſlator has deemed poſſeſſive of too much pleaſantry to fail of being agreeable to the Engliſh reader; he has therefore given it in a note.

Illuſtrious warriors of Saint Roch,
Between us, this exceeds a joke,
Mean you to tarry here for life,
Or one day end the mortal ſtrife?
Whence can you not contrive to join
Diſpatch to valour ſo divine?
Your patience ſtill may laſt no doubt,
But ours is fairly wearied out.
Then heroes of the long blockade,
Conclude at length your vain parade;
And let us hear of your defeat,
Or that the enemy is beat.
Inceſſantly your batteries roar,
As they would rend the world aſunder,
While tranquilly the Engliſh ſnore,
Unheedful of your mighty thunder:
Or if they anſwer you by chance,
'Tis out of common complaiſance,

A kind

tower of the mile, ſituated between the beſiegers and the beſieged, the only object which had eſcaped their mutual ravage; and the place where the Engliſh had made ſome little gardens before the fortreſs, and beyond the limits fixed by the peace of Utrecht.

After coaſting the bay for ſome time, we took a direction towards the Mediterranean, to ſurvey nearer at hand, and in different points of view, the rock which for five years had been the object of ſo many ſpeculations; but with a conductor ſo ſtrict as that with us we did not preſume to go beyond a ſmall tower, ſituated cloſe to the Mediterranean, and near which the firſt Engliſh corps de garde is ſtationed. On this ſide, the fortreſs is thick beſet with batteries, moſtly in a very ſteep ſloping direction. Here we ſaw the mouth of a mine which the Duke de Crillon had hollowed within the rock, and by which he intended to revenge the fate of the floating batteries, when the peace obliged him to deſiſt, and left the foundation of the fortreſs ſecure. This was not the only point of the rock the Duke de Crillon threatened; on the Mediterranean ſide, the declivity, though ſo ſteep as to be almoſt perpendicular, does not continue ſo to the ſurface of the earth. Between the foot of the mountain and the ſea, there is a kind of path which leads to Europa point. At the entrance of this path, a ſecond opening in the rock had been made.

Notwithſtanding the ſarcaſms thrown out againſt both theſe attempts on Gibraltar, I have been aſſured by perſons who were preſent, that when General Elliott, after hoſtilities had ceaſed, walked with the Duke de Crillon round the place, he appeared ſurpriſed at ſeeing the progreſs made in the firſt of theſe mines, and ſaid to the French general, *If he had known the ſtate of them, he ſhould not have been ſo eaſy.* Was this expreſſion ſincere on the part of the Engliſh hero, or a ſpecimen of French complaiſance? On this I ſhall not undertake to decide.

Rather do I prefer preſenting my readers with a ſuccinct but well authenticated account of the grand enterprize which arreſted the attention of all Europe, and the cataſtrophe which was ſo unfortunate.

The court, wearied with the uſeleſs blockade of Gibraltar, a ſource of ridicule to all Europe, and even to the beſieged themſelves, thought ſeriouſly of taking the fortreſs by ſome uncommon means, againſt which neither its ſteepneſs, its formidable artillery, nor the ſkill of General Elliott, might afford any adequate reſiſtance. It received projects from all quarters, ſome of them hardy even to extravagance, others of ſuch a

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A kind intention to aſſuage
Your wild yet not unfounded rage.
Four years experience ſhould ſuffice
To make ſtill greater blockheads wiſe.
Your laboured works grow old, and you,
Heroic Sirs, are grown old too.
'Tis time to quit theſe martial cares,
And leave the buſineſs to your heirs,
Who ſome few previous races run,
May end the ſiege by you begun.
Your trenches, batteries, and mines,
Your mortars, and fire proof machines,
Which your Gazettes with pride diſplay,
The coffee-houſe alone diſmay.
In vain you block, in vain you batter,
Thoſe you would ſtarve, grow daily fatter,
And at the worſt will only die
Of corpulence and lethargy.

whimſical

whimſical deſcription, that they could not be miſtaken for ſerious. Of this kind I received ſome myſelf. One, forwarded to the miniſter, formally propoſed the conſtruction in front of the lines of St. Roch, of an enormous cavalier, riſing to a greater elevation than Gibraltar itſelf, and by this means depriving it of its main defence. The author had calculated the number of cubic fathoms of earth which it would require, the number of hands neceſſary, and the length of time which this prodigious work would demand; and proved that his plan would be leſs expenſive, and leſs murtherous, than a prolongation of the ſiege, in the manner it had been carried on.

Another conceived the idea of filling bombs of ſuch a horridly mephitic quality, as, upon their exploſion, ſhould either drive the beſieged away from the fortreſs, or poiſon them on the ſpot.

At length, the project of Darçon was received, and fixed more ſtrongly the attention of government.

This project, conceived by this engineer at a diſtance from Gibraltar, and the failure of which has not tended to annihilate the reputation he has acquired of a man of great genius, this project was brought to perfection, and modified by himſelf within ſight even of the garriſon. But what a number of difficulties it had to encounter! French impatience, national jealouſy, the bickerings of rivalry, the vexatious inquietude of commanders, the pretenſions of ſelf-love, the thoughtleſs impetuoſity of ſome of its co-adjutors, the perfidious plots of others, and the preſumptuous want of foreſight of almoſt all; conjointly all concurred to cauſe the ill ſucceſs of a project which one cannot refrain from admiring in ſpite of its failure, where one has had an opportunity of ſtudying it in detail.

It was known, as I may ſay, but by the exiſtence of ten praams, which, on the 13th September 1782, by raſhly expoſing themſelves to the fire of their batteries, were reduced to aſhes by the Engliſh. Such ſummaries are very convenient for idleneſs and malignity, but would form very defective elements for the hiſtorian. Enlightened by memoirs of the day, he will rather ſay, that, if this great undertaking failed of ſucceſs, it was owing to the concurrence of circumſtances, over which the genius of Darçon had no controul whatever. One of the principal of theſe was the precipitancy with which the project was executed before every thing was in readineſs, to ſecure its ſucceſs. It is well known, that theſe ten praams were formed in ſuch a manner as to preſent towards the battery a broadſide covered over with a blind three feet in thickneſs, which was kept continually wet by a very ingenious piece of mechaniſm. By this contrivance it was computed, that the red-hot balls would be extinguiſhed immediately wherever they penetrated: but this firſt contrivance was rendered incomplete by the unſkilfulneſs of the caulkers, which prevented the effect of the pumps, deſtined to ſupply the water. It took effect therefore, and that only in a partial degree, on board of one of them, the *Talla piedra*. But this was not all. Although they had only very careleſsly founded the ſtations which they were to aſſume, they had yet pointed out the courſe to be taken in order to avoid running aground, and keep a ſuitable diſtance; another precaution which turned out uſeleſs. *Don Ventura Moreno*, a brave ſeaman, but inadequate to the combination of a plan and carrying it into effect, conſidering his honour called in queſtion by a letter which General Crillon had wrote to him in the evening of the 12th of September, in which he ſtated, *if you delay the attack, you are not a man of honour*, he haſtened the ſailing of the praams, and commanded them to take a different poſition to that laid down in the original plan. This change of poſitions was the principal cauſe of the fate of the day.

From this miſtake only two of the praams could reach the diſtance of two hundred toiſes, that which was previouſly concerted; the *Paſtora*, commanded by Moreno himſelf, and the *Talla piedra*, on board of which was the Prince of Naſſau, and Darçon. Theſe two, however, were expoſed to the moſt tremendous of all the batteries, the royal baſtion, whereas, according to the plan laid down, all the ten were to have grouped round the old mole, and receive only a ſide fire from that battery.

The only two praams which occupied this perilous poſition both cauſed and experienced conſiderable damage. The *Talla piedra*, in particular, received a mortal blow. In ſpite of the blind, a red-hot ball penetrated to the dry part of the veſſel. It was very ſlow in taking effect. The Talla piedra began her fire about ten o'clock in the morning, the ball ſtruck her between three and five, but the ravage it cauſed was not deemed irremediable before midnight. The *San Juan*, which was near it, ſuffered the ſame fate. It appears to be evident, that the other ten received no injury.

What however was ſtill more afflicting, every thing was wanting at once: ſtream anchors aſtern of the praams to tow them away in caſe of accident; and boats for the reception of the wounded. The attack was to have been ſupported by ten veſſels, and more than ſixty gun-boats and bombs. Neither bombs, nor boats, nor veſſels, however, made their appearance.

To conclude, in the poſition laid down, the praams would have been ſupported by the fire of one hundred and eighty-ſix pieces of cannon from the lines of St. Roch. This concert became impoſſible. More than four hundred cannon were to play at once on the baſtions of the *North*, *Montagu*, and *Orange*. With a ſuperiority of nearly three hundred pieces, Darçon flattered himſelf he ſhould be able to ſilence the artillery of the place. But what was his conſternation when he ſaw that the beſiegers had no more than from ſixty to ſeventy cannon in play, which were anſwered by the enemy from the mouths of two hundred and eighty pieces.

The combined ſquadron remained a quiet ſpectator of this ſtrange diſorder. Guichen, who commanded our fleet, offered his aſſiſtance to Moreno, who returned for anſwer, it was not wanted.

Bad became worſe, and no remedy was at hand. Of the ten praams, eight were at too conſiderable a diſtance either to do much harm, or be liable to any great injury, the two others, to uſe the expreſſion of Darçon, carried the *gnawing worm* in their ſides. Moreno, deſpairing of being able to ſave any of them, gave orders to let thoſe continue to burn which were already injured, and that all the reſt ſhould be ſet on fire. I myſelf have ſeen this original order. Such was the cloſe of this day, in which ten veſſels were deſtroyed, maſter-pieces of human ingenuity, which coſt 3,000,000 of livres building (£125,000), and the arming and fitting up of which with cannon, anchors, rigging, &c. coſt, two millions and a half in addition (£104,000)*.

Scarcely had this formidable attempt been defeated under the walls of Gibraltar before it was re-victualled by Lord Howe, in ſight of our armies and navies. His Lord-

* In the firſt moment of conſternation the ineſtimable Darçon confeſſed, that he alone was blameable for the fatal reſult of the day. For a long time I was in poſſeſſion of the ſhort but energetic letter, which he wrote to the ambaſſador Montmorin, on the ſhores of Algeziras, to the dying noiſe of artillery, and by the light of the burning praams.

"I have burnt the temple of Epheſus; all is loſt, and all owing to me. My only comfort under my misfortune is, that the glory of the two ſovereigns remains unſullied. Accept the homage," &c.

Nevertheleſs when he recovered from his confuſion, Darçon, in a very learned memoir, endeavoured to qualify the confeſſion which had eſcaped him, and to prove that more than one accomplice were concerned in the failure, or rather that the blame was chargeable to circumſtances alone, and thoſe of the moſt fatal and imperious nature.

ſhip

ſhip boldly ſailing up the Mediterranean afterwards with thirty-ſix ſhips. From *Buena Viſta* he was perceived on his courſe from the one ſea to the other; and general opinion pronounced him running on ruin. The fifty-two veſſels which were in the bay weighed anchor and purſued him. But Howe laughed at our manœuvres, as fortune had done at our projects; and, after wearying the combined ſquadron in a cruiſe of a fortnight, repaſſed the ſtrait in as full ſecurity, as he had placed the fortreſs.

So many croſſes created vexation, but not diſcouragement. The two French Princes alone and their brilliant ſuite, who imagined that they had only come to the columns of Hercules to be preſent at the ſurrender of Gibraltar, deeming ſucceſs no longer practicable, teſtified an impatience to be gone, which was far from ſatisfactory to the court of Madrid, but which nevertheleſs it granted. It was at the Eſcurial, upon their return. The reception they found at this ſecond interview, was ſcarcely ſo affectionate as at their firſt appearance. The enthuſiaſm which they had at firſt excited had abated, which was to be expected.

The theatre of theſe events laid now before me, with how much intereſt did I examine the different approaches, and the whole compaſs of this famous rock. On the ſide of the Mediterranean it is moſt perpendicular, but is more ſloping toward the bay of Algeziras. It is on this ſpecies of talus, that the art of fortification has diſplayed means of defence ſo prodigiouſly numerous as can hardly be conceived.

Nature, as if to render Gibraltar inacceſſible on all ſides, has placed between the foot of this fortreſs, to the weſt, and on the ſide of the bay of Algeſiras, a deep marſh which leaves between it and the place, as far as the land gate only, the breadth of a narrow cauſeway, commanded by an hundred pieces of cannon. A ſmall dyke between the marſh and the bay runs by the ſea-ſide to confine the water, and terminates at the land gate; and the marſh is contained in the enclofure of the place by a paliſſade, which begins at the foot of the mountain and terminates at the ſea. This paliſſade was the firſt victim at the ſiege of Gibraltar. It was re-eſtabliſhed after the peace. The old mole is diſtinctly ſeen from it; it is a kind of narrow bank or cauſeway, with cannon planted on both ſides, and entirely maſks the new mole, which is half a league behind it.

After having an interview with three Engliſh officers, ſeparated by this paliſſade, and who preſſed us in vain to infringe upon the order of the court of Madrid, but with whom we could not refuſe drinking a few glaſſes of porter to the health of George III. and General Elliott, we trod back the road from the lines. Behold, ſaid I to myſelf, the rock which for five years engaged the attention of all nations. It is almoſt uſeleſs to the Engliſh, but they imagining their honour concerned in keeping poſſeſſion of this ſpot of land, in ſpite of nature, which ſeems to have allotted it to the monarch who reigns over the peninſula of which it makes a part, ſacrifice millions to fortify, preſerve, and defend it. On the other hand, vanity alone excites Spain to attempt its recovery; and to this chimera, under a monarch ſparing of the blood and treaſure of his ſubjects, ſhe ſacrificed, for four years together, moſt enormous ſums, the moſt advantageous military plans, and even the glory of the kingdom, were that glory rightly underſtood.

CHAP. X.—*Malaga.—Return to Madrid by Ximera, Gauſin, Ronda, Oſſuna, &c.—Departure from Madrid, and the cauſe thereof,—Three roads from Madrid to Valentia.*

THIS would be the proper place for me to conduct my readers back to Madrid, through the kingdom of Grenadas, but I am obliged to confine myſelf to making them acquainted with Malaga.

In travelling thither from Cadiz, you traverſe a very fine country, where high mountains and beautiful plains ſucceed each other alternately, as far as *Antequera*, a town agreeably ſituated on the ſummit of a very elevated mountain. Thence to Malaga there is a ſuperb road, begun in 1783, and which winds for ſeven leagues between hills covered with vineyards.

Malaga itſelf is delightfully ſituated in a climate which is a ſtranger to rain, excepting in the latter ſeaſon of the year. On the north and eaſtern ſides, it is placed immediately at the foot of very high mountains, whoſe ſummits at times are covered with ſnow. On the weſt, is a fertile plain watered by two ſmall rivers. The ridges of the mountains which command Malaga are well cultivated, and covered with almond trees, olives, oranges, lemons, figs, and eſpecially with vines whoſe beneficial produce circulates at table, from one end of the world to the other. There are more than ſix thouſand vine plots, (Lagaris) within the juriſdiction of Malaga. The produce of common years is about 70,000 arobes of wine (2000 butts) more than half of which is exported.

It poſſeſſes from eight and twenty to thirty different ſpecies of grapes, among which the beſt are thoſe called *Tierno*, *Moſcatel*, and *Pedro Ximenes*. This laſt name, the origin of which it is difficult to determine, even upon the ſpot, is given to one of the moſt valuable Malaga wines, but belongs to no diſtrict excluſively.

There is another mode of claſſing the Malaga grapes, by the different periods at which they ripen. The early grapes are gathered in June. Theſe it is that make the beſt raiſins, and a wine alſo which is nearly as thick as honey. The *ſeaſonable grapes*, which are gathered in the beginning of September, yield a dry wine of a better quality and ſtronger; and laſtly the *late grapes*, which produce the real Malaga wine. Among theſe there are ſome ſorts diſtinguiſhed by epicures, and which being leſs uſual are ſold at a higher price than common wines; ſuch is the wine called Lagrima de Malaga, which is the moſt excellent of thoſe of the beſt diſtricts; ſuch alſo the *Guindas* wine which is no other than the common Malaga wine, in which the tender buds of the black-heart cherry have been ſteeped, the fruit of which is in Spaniſh called Guinda.

After the vine, the olive tree contributes moſt to the riches of Malaga. There are five hundred olive preſſes in the neighbourhood of that town; but owing to the ſame cauſes that exiſt in other provinces, the oil is not of a prime quality; it is, however, tolerable at Velez Malaga, and ſtill better in the vicinity of the village of Churian.

Few people, even in Spain itſelf, have knowledge of the ſugar cane being cultivated round Velez Malaga, and eſpecially at *Torrox*, two leagues beyond. It is true, a ſcarcity of wood has occaſioned theſe ſugar plantations, the ornaments of Mooriſh induſtry, to fall into decay, moſt of the canes ſerving only for ſweetmeats to children who ſuck them. Among ſome which ſtill exiſt, thoſe particularly of *M. Thomas Quilty de Valois* deſerve to be mentioned, he keeps two ſugar mills employed, the produce of which is little inferior to the ſugar of the Antilles. He has likewiſe eſtabliſhed a refinery which has yielded ſamples of Rum equal to the beſt from Jamaica. He makes uſe of ſea coal for heating his coppers, which comes ſometimes from England, at others from the coaſts of Spain along the Mediterranean, where for ſome time back a ſufficiency of coal has been worked from the mines, to ſatisfy the demands of the department of Carchagena. There are mines even at a little diſtance from Torrox, but the backwardneſs of the Spaniards in many inſtances, notwithſtanding their improvement in ſeveral matters, is here the cauſe of their not being worked.

The mountains which ſurround Malaga are inexhauſtible treaſuries for the mineralogiſt. They contain jaſper, alabaſter, antimony, mercury, ſulphur, lead, amianthus, loadſtones, &c.

Malaga has no other building which is remarkable than its magnificent cathedral, which is incomplete from a want of hands, and money; and a modern theatre, not deſtitute of elegance.

In the time of the Moors, this town and its neighbourhood were much better peopled than what they are at preſent. The city formerly contained more than 80,000 inhabitants. In 1747 its population was 32,000, and in 1789 about 50,000. In the weſtern part of its territory there were more than fifty villages; at preſent there are no more than ſixteen. Theſe facts prove better than all the declamation of philoſophy how highly injurious to Spain was the expulſion of the Moors.

Policy has not been the only ſcourge from which this country has ſuffered. It has experienced ſome earthquakes, and thirteen or fourteen times has it been ſubject to peſtilence, the laſt happened in 1750; and the torrent of *La Guadalmedina*, which paſſes through it, renders it liable during the rainy ſeaſon to terrible inundations. It has three ſuberbs, narrow, dirty, and ill paved ſtreets, and rather bears the appearance of a large than a handſome city; but its territory and its haven unite in making it a town of great importance. Its port is famous for its ſpaciouſneſs and conveniencies. It will contain four hundred merchant ſhips, and ten ſail of the line. Veſſels may enter or leave it with any wind. Two moles form its mouth about three thouſand toiſes diſtant from each other; but the ſea recedes by degrees from this coaſt; and as the Guadalmedina throws up a great quantity of ſand Malaga may eventually be deprived of its port.

In the interim this town carries on a moſt extenſive trade. The two nations which reap the greateſt advantage from it, are firſt the French, and next the Engliſh. In 1791 there entered this port 321 French, 342 Genoeſe, and 62 Engliſh ſhips, &c. Nevertheleſs there are more veſſels of this latter nation frequent the port than of any other. In 1789, the proportion was nearly a hundred Engliſh to eight or ten French merchantmen. The Spaniards themſelves reſort thither in greater number than formerly. Two only reported there in 1785. In 1793 there were thirty three.

Smuggling has ſtrangely encreaſed within a few years upon the coaſt of Grenada. Hence ſevere laws which are attempted in vain to be enforced; hence frequent aſſaſſinations which take place with impunity.

A road along the ſea ſhore leads from Malaga to Velez Malaga, a pretty little town a quarter of a league from the Mediteranean, and birth place of the famous miniſter Galvez. In order to promote induſtry in this diſtrict, he eſtabliſhed a manufactory of cards at *Macharaviaya*, a village in the neighbourhood of Velez, which ſupplies the whole demand of the colonies of Spain.

But let us return to San Roch, in order to reſume the highway to Madrid. By a little deviation from the direct road you paſs through *Ximena*, a town ſituated on the declivity of a ſteep rock. About twenty years ago, the miniſter Galvez eſtabliſhed there a foundry for iron cannon, and ball, deſtined excluſively for the conſumption of Spaniſh America.

Three leagues beyond Ximena you come to Gauſin, a handſome town in the middle of very high mountains, whence the rock of Gibraltar may be diſtinctly ſeen. At the foot of it is a deep valley, watered by numerous rivulets in every direction. A great encloſure, belonging to the Franciſcans, contributes eſpecially to embelliſh the ſcene.

For

For the poſſeſſions of the monks are every where well ſituated and well cultivated; and ſerve to enliven the adjacent country.

Beyond Gaüſin, the road for two or three leagues lies over the ſide of the mountains, which are covered with vines from their ſummits to the bottom of the valleys. The country afterwards becomes more rugged; and the road as far as Ronda, lies acroſs enormous mountains, in the windings of which waves the moſt horrid road imaginable. From time to time you meet with wretched villages hung, as it were, upon the ſides of naked rocks. Their ſituation, their names of Gicatazin, Benali Atajate, ſufficiently indicate, that built by the Moors in the boſom of the moſt inacceſſible mountains, they ſerved formerly as aſylums from the attacks of the Chriſtians. At preſent they are the haunts of thieves and ſmugglers.

The road after paſſing Atajate aſcends again and continues to the ſummit of the high mountains, whence the rock of Gibraltar, is for the laſt time viſible.

We ſoon afterwards diſcover *Ronda*, a town ſurrounded by a double encloſure of rocks, between which runs a ſmall river, and forms a natural fortification where not of utility it is extremely inconvenient. This inconvenience, however, has lately been remedied by the conſtruction of a ſtone bridge for the inhabitants, of a moſt tremendous elevation.

To the North Eaſt, the environs of Ronda produce fruits of every deſcription, a circumſtance not often met with in Spain; for whether the gardeners want ſkill, or the nature of the ſoil be unadapted to their growth, the country of oranges, figs, and olives, is not that of the exquiſite fruits which conſtitute the moſt ornamental and delicious part of our autumnal deſerts. What would incline one to ſuſpect the blame to lie with art, is the circumſtance of the King's table being covered with excellent fruits of this kind from the gardens of Aranjuez and Saint Ildefonſo, under the care of intelligent gardeners.

Paxarete, famous for its wine, is four or five leagues from Ronda, and belongs to M. Giron, one of the principal inhabitants of Ronda, an officer of diſtinction, known in the laſt war by the title of the Marquis *de las Amarillas*.

Grazalema, ſituated, like Ronda, in the boſom of rocks, is only three leagues from the latter town. The inhabitants having abundance of water, and but few reſources, employ themſelves on one of the principal manufacturers of Spaniſh cloths, for the conſumption of the common people.

On leaving Ronda, paſſing through *Cannete*, a large unhandſome town, the country is uneven, and of melancholy aſpect, notwithſtanding its vaſt fields and plantations of olive trees; and after travelling five leagues you arrive at *Oſſuna*, the capital of the duchy of that name. The city is conſiderable, but nothing in it announces affluence, although many of the nobility reſide there. It contains an *Alameda*, or public walk, decorated with a fountain: and the traveller, if ſo diſpoſed, may amuſe himſelf at the expence of a pompous inſcription intended to commemorate a very wretched performance.

From Oſſuna to Ecija is but ſix leagues, acroſs a flat country in the beſt ſtate of cultivation of any in Andaluſia.

From Ecija to Madrid is ſeventy-five leagues, over a country which I have already deſcribed. I have now no more left me than to conduct my readers back to the French frontier by the road which I took in 1793, in conſequence of an event which made the firſt month of that year a remarkable epoch.

The court of Spain had long foreſeen the ſtorms gathering over the head of the unfortunate Louis XVI.; and principally with a view to its diſperſion, and either giving

credit, or pretending to credit, the assurances of that prince, it received me in the month of May 1792 as his minister plenipotentiary. I shall observe on this occasion, that the Spanish monarch and his court did not act up to their professions with respect to me. They appeared to acknowledge my character in a free and spontaneous manner; while, from the reception I experienced for the space of four months, it was easy to perceive how repugnant to their feelings this acknowledgment was. In this ambiguous situation was I placed when I was surprised at St. Ildefonso by the news of the event of the 10th of August, on the eve of the festival of St. Louis, the Queen's gala day. I did not, however, refrain from attending at court. It was a courageous step on my part; the last I attempted. After that day I conceived it my duty to keep away, as after the downfall of the King I was no longer regarded as his representative. This circumstance, however, did not prevent my holding communication with the Count d'Aranda, and his successor the Duke de la Alcadia, as frequently as the interests of my country made it expedient.

In the mean time Spain, notwithstanding the pacific disposition which she pretended, and authorized me to give assurance of to the new French government, was making preparations of an hostile appearance. I watched its motions narrowly, and required an explanation. More than once did the Spanish minister take umbrage at a foreign government intermeddling in its interior administration. However as peace was at that time desirable, and hoping above all things to save Louis XVI., it was on the eve of engaging to remain neutral by a formal act. This act was even drawn up in my presence, and sent to Paris, whence it was returned to Madrid with some trifling alterations. Spain looked upon them as of sufficient weight to require fresh explanations.

In the interim the trial of the King was carrying on. Charles IV. used the most affecting but a tardy intercession in favour of his relation. The death of Louis was decided upon. He lost his head. My negociation was at an end. In vain did I attempt to renew it. The prime minister, who was then with the court at Aranjuez, gave me to understand that for the instant any interview with me would be ill-timed. I insisted stating that I could have no business any longer in Spain, if I ceased to possess the facility of discussing affairs relative to my country, and demanded my passport. It was sent to me; and I left Madrid the 23d February 1793. As I was then unacquainted with Catalonia, which at the eve of the war with which we were threatened must necessarily be the theatre of the military preparations of Spain, I resolved on taking the route of Valencia and Barcelona, re-entering France by the way of Perpignan.

The first day I reached Aranjuez, where the court was at the time. I saw for an instant some friends which I yet preserved among the Spaniards, and who lamented with me the disastrous rupture of which my departure was the signal, foreboding with me at the same time that it would not be of long duration. I continued my journey, and slept at Ocana.

I entered La Mancha, the western part of which I was about to travel through, in order to gain the kingdom of Valencia. I had already made this journey in 1783, in the finest season of the year, at a period when my mind, the political horizon, and every around me partook more of serenity.

There are three roads from Aranjuez to Valencia; one, which is the post-road passes by *Tarançon*, *Requina*, &c. This is that I travelled over in 1783.

Another, which I made choice of on my return, goes through San Felipe, Almanza, and Albaceti.

The third is the beautiful new road which carries you very commodiously from Madrid to Valencia.

I shall

I ſhall travel rapidly over theſe three roads. If you take the poſt road, you paſs along *La Calle de la Reyna* for the ſpace of half a league, then turn to the left, and bid adieu to ſhade and verdure.

During the firſt ſeven leagues you frequently approach the Tagus, no longer now the Tagus of Aranjuez, nor even of Toledo: you at length arrive at Fuenteduennas, a large village, in every part of which poverty and idleneſs are but too conſpicuous.

A little beyond *Tarancon*, a large town, three leagues farther on, you diſcover the caſtle of *Ucles*, which after having been a fortreſs, no doubt built to prevent the incurſions of the Moors, as its form ſufficiently indicates, is become the peaceful abode of a religious ſociety.

I paſs rapidly over *Saylices*, *Villar del Saz*, and *Olivarez*, the ſituation of which, in the centre of a chain of hills, is highly pictureſque.

Bonache, three leagues farther on; thence to the borough of Campillo, the diſtance is five leagues, by a road full of ſtones, and a country which preſents on every ſide ſterility and depopulation. From Campillo to *Villargorda* you travel over the ſummit of mountains, by paths where two men would be unable to go abreaſt without danger of tumbling over into deep vallies. After having thus ſtumbled for ſome hours over rocky ground, acroſs a wild and uncultivated country, you deſcend for the ſpace of a league by a very winding road, and diſcover the Rio Cabriel, ſerpentining in a narrow valley covered with verdure, which it leaves, after having paſſed under a handſome bridge of one arch, called *El puente de Pajazo*. Near this bridge is a vaſt cavern, formed by nature, the retreat of ſmugglers and robbers which infeſt this unfortunate country.

After climbing again a ſteep hill, you reach the poſt houſe of Villargorda.

The mountains you have thus travelled over are called *Las Contreras*, the dread of travellers. The four ſucceeding leagues conduct you to Requena, acroſs a plain which affords the firſt ſpecimen of Valencia. The neighbouring ſtream, from which cuts are made to irrigate the plain, concur with the excellence of the ſoil, and the mildneſs of the climate, to make them fruitful in corn, vines, flax, paſtures, and above all mulberry trees.

Beyond Requena is another chain of mountains, called *Las Cabrillas*. This road likewiſe is very rugged, but not of long duration, and at the end of three leagues you reach a Venta, which ſtands entirely by itſelf, called *La Venta del Relator*.

As ſoon as you have paſſed through Requena you enter the kingdom of Valencia, and are able to diſtinguiſh this from the induſtry and activity of its inhabitants, who make every advantage of the ſlender portion of ſoil they find on the back of their rocks.

But the environs of Cheva in particular realize the captivating pictures one takes a pleaſure in ſketching of this country. It affords an inexpreſſible delight after croſſing the dry and barren plains of Caſtile, where trees are ſo uncommon, the graſs without verdure, and the lands without incloſures, to find one's ſelf between live hedges, formed by aloe trees, and ſerving as fences to orchards, paſtures, and plantations of olives and mulberries.

This lovely ſcene is continued for half a league beyond Cheva. The land afterwards is of a poorer nature. Soon however the delightful eye ſurveys Valencia and the Mediterranean. On arriving at *Quartos*, about a league from Valencia, you meet with nothing but a continuation of orchards, gardens, and little country-houſes, the ſimplicity of which affords a charming contraſt to the luxury of nature. Half a league farther you paſs through a ſecond village, which ſtretches to the ſuburbs of Valencia.

The road which I took on my return in 1783 is longer by ſeven leagues than the firſt. It is not the poſt road, but yet it may be travelled over either in *coches de colle-*

ras, or much more œconomically in little cabriolets, called *Calezin*, much in vogue in this country, as well in the neighbourhood of Valencia as in the town itſelf.

On this ſecond road you travel for ſix leagues over the richeſt country imaginable, by one of the beſt roads in Spain. Plots of mulberry trees intermixed with fields of rice continue all the way to San-Felipe. This town, formerly called *Xativa*, is built on the ſloping ſide of a mountain, protected by two caſtles above it, and forms a kind of amphitheatre, thus explaining the long reſiſtance it was able to make to Philip V., and for which it was puniſhed by loſing its name and its privileges. It has a church of handſome appearance, and ſeveral fountains which would not diſgrace the largeſt towns.

On leaving San-Felipe, for three leagues the road lays between uncultivated and unpeopled hills, when you arrive at the *Venta del Puerto* ; you are then upon the confines of the kingdom of Murcia, ſo much extolled for its fertility and excellent cultivation. This praiſe, however, is well merited only in the plain wherein its capital is ſituated, upon the banks of the Sigura, known by the name of *La Vega de Murcia*.

From La Venta del Puerto the view is confined on all ſides to barren mountains, croſſed by the road to Almanza. You diſcover this town at the extremity of a vaſt plain, famous for the victory which inſured the throne to Philip V. This plain is well cultivated, and its fertility ſeems to increaſe as you approach Almanza. There is a tradition at Almanza, that the years immediately ſucceeding the battle, which has received its name from that place, were extremely productive ; ſad compenſation for the deſtruction that victory occaſioned to the human ſpecies ! About the diſtance of a cannon ſhot on this ſide Almanza is a ſocle, which bears upon its four ſides Latin and Spaniſh inſcriptions, relative to the victory gained by Marſhal Berwick. Above the ſocle riſes a little pyramid, upon which was formerly an armed lion. The people of Valencia irritated by this image, which ſeemed to threaten them, beat down the lion with ſtones, when the ſmall ſtatue the pyramid now bears was ſubſtituted in its ſtead. To eterniſe a victory like that of Almanza, one would look for a more magnificent monument.

The induſtry of Almanza is confined to the weavers, who indeed are numerous : the hemp grown in the neighbourhood is not near ſufficient for their employment. To the north of the village are the ruins of an old inhabited caſtle, and to the weſt, at about a quarter of a league from Almanza, is a mountain in ſhape of a trapezium, the outlines of which are ſo ſymmetrical, that at a diſtance the traveller is inclined to take it for an enormous intrenchment.

On leaving Almanza before the great road was finiſhed, the traveller had to croſs a ſtony country, wild, and covered with heath ; another no very pleaſing ſpecimen of the kingdom of Murcia. You next perceive Chinchilla on the left, a town on a barren eminence, but which commands the ſpacious and fertile plains of La Mancha. One is then but a few leagues from *Hellin*, a place remarkable for being the native place of Macanaz and Count Florida Blanca, who was exiled thither after his diſgrace.

You then are near *Albacete*, the country about which is improved by irrigation. This large town laying between Valencia and Alicant, is a place of rendezvous for a great number of merchants. Its induſtry is exerciſed on iron and ſteel brought thither from Alicant, but in a ſomewhat rude manner. Still its manufactures are ſufficient to baniſh idleneſs and poverty from the city.

From Albacete the road paſſes through three extenſive villages of La Mancha, *La Gineta*, *La Roa*, and *Minalla* ; and you travel nine leagues acroſs a vaſt plain which is not well cultivated, producing only a little corn and ſome ſaffron.

Next ſucceeds El Provenzio, rather a conſiderable town ; the cultivation of ſaffron is the principal employment of its inhabitants.

Beyond you paſs over well cultivated lands and through two villages, *Pedronera*, in which there is a manufactory of ſaltpetre, and *La Mota*, pleaſantly ſituated. Hence the eye ſurveys the immenſe plains formerly the theatre of the exploits of Don Quixote. Shortly after you find yourſelf within a league of El Toboſo, the birth place of Dulcinea; and diſcover the ſteeple of El Toboſo, the little wood in which Don Quixote waited for the tender interview procured him by his faithful ſquire, and the houſe in which Dulcinea received his amorous meſſage.

At length you paſs through *Quintanar*, and arrive at Corral, a large village, within nine leagues of Aranjuez.

In 1783 the new road proceeded no further. In 1793 I found it advanced to the confines of the kingdom of Valencia, and with the exception of about twelve leagues the road from Madrid to Valencia was one of the fineſt in Europe. The new road takes a different direction in many points from the old one. It leaves San Felipe a league to the left. It does not croſs the vaſt plain of Almanza, nor near the pillar which commemorates the battle. When you have attained the ſummit of the plain, you keep for ſome time along the ſkirts of it, and afterwards deſcend into the kingdom of Valencia, which announces itſelf by its temperature and flouriſhing ſtate of cultivation. When I entered this kingdom in my laſt journey, (the 27th February,) already were the almond trees in bloom, ſpring ſhewed itſelf in myriads of opening flowers; our road ran between plantations of olive trees and carobas, favoured by the ſhade of which the earth already gave ſymptoms of its fertility. This early, cheerful robe of nature appeared the more ſtriking, from our having previouſly travelled over La Mancha, ſtill in many parts covered with ſnow.

We noticed, however, very few dwellings by the way. A *Venta*, ſituated midway on the ſlope of a hill, commands a view over a fertile valley. Thence to the *Venta del Rey*, a large new inn, is four leagues; at this place we were agreeably ſurpriſed at finding decent furniture, and a chimney place.

Every where throughout this diſtrict the eye is cheered with the appearance of comfort. The new road is conſtructed with the niceſt attention, nay even with magnificence.

At intervals you meet with handſome new built houſes, fine bridges over even the ſmalleſt rivulets, ſuperb raiſed cauſeways caſed with maſonry, numerous parapets for the ſafety of travellers, the road at times artfully winding round the ſides of hills, and ſtones to diſtinguiſh the diſtance at every league. The fifty-fifth is at the entrance of a long village, at the end of which is built the *Venta del Rey*. Before you reach it you paſs through Lanera, another village, conſiſting of a group of houſes moſtly new built, along the ſide of the road. High roads, particularly in fine countries, are like rivers and ſtreams; they invite population.

CHAP. XI.—*My arrival at Valencia, inſurrection againſt the French.—Deſcription of this city and its neighbourhood.—Rice grounds.—Barillas.—Oils.—Export aloes.*

WE arrived rather late at Valencia on the evening of the ſeventh day. The ſixty-third column is oppoſite the firſt houſes of the ſuburbs, where we deemed it expedient to paſs the night; a meaſure of prudence recommended rather by the terror of the muleteer than any apprehenſion of our own. Valencia at that period was the theatre of a moſt violent inſurrection, excited by royal and religious fanaticiſm againſt the French nation. Every thing that related to France, whether by name or origin, was expoſed

to

to the fury of the populace. In order to repreſs this tumult, Don Vittoria Navia, who was governor in the kingdom of Valencia, had occaſion for all his vigilance, and the whole of the trifling armed force left in his capital. On the night of our arrival the town was illuminated, and numerous patroles prevented diſorder. The innocent and peaceable objects of this blind hatred, ſhut up within their aſylums, were apprehenſive of their being violated at every inſtant. Acquainted with ſome perſons thus ſituated at Valencia, I ſacrificed to their ſecurity the pleaſure I ſhould have had in ſeeing them; for which caution they were thankful.

For our part, keeping ourſelves ſtill and cloſe ſhut up within our apartment, we enjoined ſilence to ſuch of our people as might betray us by their ſpeech, and particularly to our children, who might by their cries have pointed out to paſſers by the reſidence of a little French colony. Happily we maintained the moſt ſecure concealment, and before the appearance of aurora we quitted this dangerous place. The tumult, which had more than once been at its height, fortunately paſſed over without any of our countrymen loſing their lives; however many of their houſes were broke open, and ſome warehouſes were plundered; the Valencians thus gratifying the ſecret malice which had long before been excited by the proſperity of the commerce and induſtry of the French; a malice more prevalent among the people of Valencia than the other cities of Spain, from the manufacturers of that city conſidering us as active and formidable rivals.

I ſhall not make my readers haſte with ſo much ſpeed through the kingdom of Valencia, nor quit its capital ſo abruptly as I was obliged to do in 1793. This country, one of the fineſt in Spain, perhaps the moſt agreeable of any in Europe, deſerves a more ample detail.

Its capital, if not exactly a handſome city, is yet a very pleaſant place to inhabit, particularly ſince a vigilant police has been eſtabliſhed in it, occupied as well in adding to its embelliſhment as its ſafety. Although its ſtreets be unpaved, they are very clean. The filth from which they are frequently cleanſed ſerves to manure the vaſt orchard which ſurrounds it on every ſide. Idleneſs and wretchedneſs are baniſhed from this city, every perſon being employed. In 1783 nearly four thouſand looms were in uſe for making ſilks of different breadths, and occupied more than twenty thouſand of its inhabitants, without reckoning the workmen in wood and in iron employed upon the conſtruction and repair of ſo much machinery, thoſe who ſeparate or ſpin the ſilk, or thoſe who dye it.

This proſperity has kept increaſing ſince 1783, and I am aſſured that of late years Valencia kept eight thouſand looms at work of every deſcription. The government neglects no encouragement of this particular branch of induſtry which it can afford. During the war with France it exhibited ſeveral inſtances of this. The war rendered a reſort to the *quintas* neceſſary upon two ſeveral occaſions, but the court exempted all young men employed any way in ſilk manufactures; and this exception comprehended more than three thouſand perſons in the city of Valencia alone.

The manufacture of ſilk is not the only employment of the inhabitants of Valencia, they furniſh a conſiderable quantity of hemp to the King's arſenals.

Their wines and brandies are alſo exported in great quantities to England, the iſland of Guernſey, Holland and to the North by way of Dunkirk, where the greateſt part of the brandies of Valencia were mixed. Within a few years paſt they have found a new market in Spaniſh America; and they even aſcend the Loire as far as Orleans. For our merchants willingly mix theſe brandies with ours, which are of a ſuperior quality; and their wines with French wines, in order to give colour.

Rice

Rice is another ſource of riches for Valencia, but the culture of it leſſens the ſalubrity of this happy climate; however, they poſſeſs a method of ſheltering themſelves from the malignant influence of the rice grounds. I have known of ſome who not going out to their work before the ſun was riſen to ſome height above the horizon, returning to their cloſe ſhut homes in the evening, and refraining almoſt entirely from the uſe of water, lived with impunity in midſt of their fields of rice; but the greater part pay for their vicinity to them by intermittent fevers. Notwithſtanding this they are not the leſs attached to this branch of huſbandry on account of its favouring their idleneſs, being at the ſame time productive. Rice is ſown about the feſtival of St. John, and is gathered towards the cloſe of September. The crops ſeldom fail, and is ſecure of a market. Is it wonderful that ſuch a ſpecies of culture ſhould have its partiſans? It has ſo many that government has been obliged to frame very ſtrict laws to prevent the increaſe of rice-grounds. They are met with in abundance along the coaſt, and particularly ſouth of Valencia from *Gandia* to *Catarrajo*. In this part the predilection of the people for this culture is a mania which nothing can reſtrain. The adminiſtration divides the eſtates into different partitions or *cotos*, and deſignates ſuch as within a limited ſpace of time are allowed to be ſown with rice; but the bounds ſpecified are almoſt always exceeded. In vain does the captain-general repair to the ſpot, to watch over their adherence to the reſtrictions, his authority is frequently compromiſed, and his ſafety occaſionally; ſo that the law is oftentimes eluded and with impunity. In conſequence, of late years the crops of rice have been prodigious. They ſerve for the conſumption of all Spain, if the ſouth of Andaluſia be excepted, where a preference is paid to the rice of Carolina.

Its numerous markets have greatly tended to encreaſe the price of rice at Valencia. The meaſure ſold in 1785 at from 6 to 7 piaſtres has riſen to 10 and 12; and the farmers of the country affirm, that Valencia receives not leſs than from 30 to 32 millions of rials (upwards of 350,000*l.*) for rice alone. There are two modes of cultivating this grain, it may either be planted or ſown. The crop of that which is planted greatly ſurpaſſes that of what is ſown, but requires an extra care, on which account it is almoſt every where ſown. The ground is previouſly tilled but remains level, without any appearance of a furrow, and is inundated to the depth of ſomewhat more than a foot. Rice, at leaſt that which is cultivated in the kingdom of Valencia, has the ſingularity, poſſibly peculiar to itſelf, of being conſtantly in the water even to the time of gathering incluſive. The rice-ground never has the water drained from it, except when it is weeded. When ripe the huſbandmen proceed in the water up to their knees, followed by carts on which the ſheaves of rice are laid; it is afterwards threſhed in the ſame manner as other grain; that is to ſay, as in the kingdom of Valencia, ſo throughout almoſt all Spain, it is trodden out of the ſtraw by horſes and mules. After this operation the rice remains in its huſk or *balle*. It is ſeparated from this by paſſing through mills perfectly reſembling flour mills excepting that the mill-ſtone is coated with cork. Rice however is ſold indifferently before or after this laſt operation *.

Barilla is a production peculiar to the kingdoms of Valencia and Murcia. It is an eſſential ingredient in plate glaſs. The annual quantity gathered may amount to one hundred and fifty thouſand hundred weight, which is divided between France, England, Genoa, and Venice.

* Rice grounds have to the preſent time continued to encreaſe. A law ſuit took place between their partiſans, and the advocates for mulberry plantation, which was determined in favour of the former; the latter in conſequence have abuſed their triumph to the injury of the healthineſs of the air. Notwithſtanding, the rice grounds do not yet extend beyond *Ria;* the reſt of Valencia is free from this ſcourge.

Potaſh, in Spaniſh called *Soſa*, is a ſpecies of barilla employed in the ſoap manufactories of France and England. The kingdom of Valencia produces about twenty-five thouſand quintals a year.

The *Agua azul*, is a third ſort of barilla. About four thouſand quintals of this are annually produced, moſt of which is ſent to Marſeilles.

Laſtly, *Solicor*, a fourth kind, is produced without cultivation, and is employed in the glaſs manufactories of France, England, and Italy.

When the plant of theſe four ſorts of barilla is well matured, it is left a day or two in heaps to dry; afterwards it is put into a hole without much preſſure, three or four feet deep, then ſet on fire and turned over or ſtirred up with long poles: and in proportion as the firſt plants are conſumed, others are thrown in. When they are all ſufficiently burned, the hole is covered, and the barilla left to cool. It is too often adulterated by mixing with it baſtard herbs produced in the ſame ſoil. The cinders that remain after this burning form lumps, which are the barilla in pieces as it is exported.

Oil is one of the moſt abundant productions of the kingdom of Valencia, but is not allowed to be exported except when the price is very low. It is reputed to have a diſagreable taſte and ſmell, and generally ſpeaking deſerves the reproach. Its imperfection is attributed to different cauſes; 1ſt, to the cuſtom of deſpoiling the olive trees of their fruit by bruiſing, inſtead of gathering it with caution; 2dly, to keeping the ſtone too long in the fruit; and 3dly, to the ſcarcity of oil mills, which occaſions the olives to be left ſeveral months in heaps, in which they ferment and rot before the juice is expreſſed.

This third cauſe appeared to me to be the chief and the moſt active. It is one of the principal inconveniences attendant on ſignorial rights which continue yet oppreſſive to a great part of Spain. In the kingdom of Valencia in particular there are few noblemen without excluſive ovens, and mills, both for grain and for olives. Now this ſecond ſpecies of mills are not ſufficiently numerous by much, for the uſe of the proprietors of olive-grounds, who yet are not allowed to build any for themſelves. The Valencians will conſequently continue to have bad oils as long as they remain ſubject to this abominable ſlavery. Not withſtanding this diſadvantage, with nice attention and care, ſome of its cultivators manage to produce oil, which even connoiſſeurs eſteem but little inferior to thoſe of Provence *.

The induſtry of the people of Valencia derives advantage from all the productions of their ſoil. The province contains a kind of earth of which they make ſquares, or tiles of coloured delph, called *Azulejos*, and which are manufactured at Valencia alone. They are uſed to pave apartments or cover ceilings; the moſt complicated ſubjects are painted upon them; ſuch, for inſtance, as a maſked ball, or a bull-fight.

Eſpart, although one of the vileſt productions of the kingdom of Valencia, is of great uſe to the inhabitants; of this they make mats and cordage. Formerly great quantities of it were ſent to the ports of France and the Mediterranean. This exportation was prohibited in 1783. The meaſure excited diſapprobation, and was much murmurred at. It was pretended that all the eſpart produced could not be conſumed in the country. The court of Spain therefore permitted certain individuals to export conſiderable quantities; and the ports of Toulon and Marſeilles, where it is of great uſe in the dockyards and arſenals, have reaped advantage from the permiſſion.

* Their method of making oil is lately a little improved, eſpecially in the neighbourhood of Alicant. At *Elches*, for example, and on the hills in the neighbourhood of this little town, a pure oil is made, as clear as water; and inferior in no reſpect whatever to the fineſt Provence oils.

The

The Valencians make uſe even of the *aloe*, a paraſite plant ſeemingly deſtined only to decorate and encloſe landed poſſeſſions. They draw from its long and thick leaves, a kind of thread, of which they make reins.

Beſides theſe they export wool of a ſecond quality, the produce of their ſheep. It is in the neigbourhood of *Gandia* in particular that the flocks are fed from which it is ſhorn, and from the port of this city it is ſhipped for Marſeilles, with numerous cargos of dry fruit, aniſeed, and cochineal, the produce of the country.

To conclude, in their abundant crops of oranges, lemons, grapes, and figs, but particularly in their wines and brandies, they poſſeſs an immenſe fund of articles for exportation.

Induſtry in Valencia, as well as in the provinces of the crown of Caſtile, is not burthened with the ſcourge of royal impoſitions. All thoſe taxes which paſs under the denomination of *provincial rents* are there unknown. For them the *Equivalente* is ſubſtituted, which is a direct tax on all poſſeſſions of every deſcription. They are valued in every diſtrict with a tolerable preciſion by the office for taxes, (*La Contadaria de mopios, y arbitrios;*) and this tax, which is moderate, is collected by a perſon appointed by the alcalde. On the other hand, the ſignorial rights, and the feudal claims to which they are ſubject, which are taken in kind from the produce of every crop, and which amount to a ſeventh, a ſixth, and in ſome places a fourth part, are a tax upon them grievous indeed.

CHAP. XII.—*Buildings of Valencia.—Canals.—Irrigation.—Its new port.—Silks.—Progreſs of its manufactories.*

But let us enter the city of Valencia, and examine the objects it encloſes worthy of remark.

Its exchange is a large building where the merchants and manufacturers aſſemble, and where the principal object of their diſcourſe and dealings is that moſt valuable production of their country, ſilk.

Arts and literature are rarely much cultivated in manufacturing or commercial towns. However at Valencia there is a public library belonging to the archbiſhop, which even contains a collection of ſtatues and antique buſts.

The laſt archbiſhop of Valencia was a man of auſtere manners, which rendered him adverſe to profane enjoyments. His ſcruples have leſſened the value of this collection, by occaſioning the mutilation of ſome of the ſtatues of which it is compoſed. The playhouſe at Saragoſſa was ſtruck with lightning, he thereupon obtained an order for that of Valencia to be cloſed, and houſes to be built on its ſcite.

Since his death, the friends of the drama are preparing a new theatre under the direction of Fontana; a ſkilful architect invited ſome years ago to Madrid to decorate the palace *.

El Real, the reſidence of the captain-general, is more remarkable for its charming ſituation than for its form. It is an ancient and vaſt edifice, placed in a moſt conſpicuous quarter. Between the walls of the town and the ſuburbs, on this ſide, is a long eſplanade, in which five bridges over the Guadalaviar terminate. Were this river full, it would be difficult to imagine a more delightful proſpect; but it arrives at Valencia exhauſted by the abundant tributes it has afforded in its courſe: for this is the river

* The building is compleated, but Valencia is ſtill without plays.

which ſupplies the chief means for the irrigation of this fertile country. Theſe irrigations are made under regulations which cannot be too much admired. Different cuts from this river conduct its water into numerous canals for the purpoſe of watering the land, (*azequias*,) and diffuſe its benefits over every eſtate. Each proprietor knows the hour and day allotted for his receiving this ſalutary viſit. He then opens his ſluices and introduces the water into the ſmall canals which ſurround his territory, and which he is moſt expreſsly obliged to cleanſe twice in a year. There are four *azequias* run from the Guadalaviar at different elevations. The chief is that which begins at Geſtalgar (called *Moncada*) a borough four leagues from Valencia, where an office for the management of this *azequia* is kept; for in this kingdom irrigation forms an eſſential article of the general police; and, in the capital, there is a tribunal excluſively charged with looking to the execution of the laws which relate to it, and of puniſhing delinquents. Its ſittings are held in the veſtibule of the cathedral; and, notwithſtanding the almoſt ruſtic ſimplicity of its members, who are wholly farmers, it knows full well how to make itſelf reſpected.

This general and periodical watering has undoubtedly great advantages. It maintains verdure and fertility. It multiplies productions to ſuch a degree as to maintain the earth conſtantly covered with fruits. The leaves of the mulberry-trees are three times gathered; the meadows of trefoil and luzerne are mown eight, nay ten times a year; and the earth, not ſatisfied with bearing foreſts of olive and mulberry-trees, produces beneath their ſhade, ſtrawberries, grain, and vegetables. But this watering has alſo a great inconvenience. This artificial fertility does not beſtow on the plants that ſubſtance which they receive from nature alone; for which reaſon aliment in this country is much leſs nouriſhing than in Caſtile. This abundance of water, which changes the nature of the plants, appears likewiſe to have an effect upon the animal kingdom. Malignity has aſſumed ſtill more with reſpect to the human ſpecies, nor has it ſpared the fair; it has invented the following verſes, which I am far from adopting, and which with difficulty I allow myſelf to tranſcribe:

En Valencia la carne es hierba, la hierba agua,
Los hombres mugeres, y las mugeres nada *.

The fineſt walks of Valencia, the *Alameda*, *Monte Olivite*, and the road of *Grao*, a little village half a league from Valencia, and by the ſea ſide, are upon the banks of the Guadalaviar.

For a long time Valencia has had no other harbour than the bad road oppoſite to Grao. Small ſhips ſcarcely approached nearer than half a league to the coaſt, and thoſe of three maſts were ſeldom ſeen there. Cargoes were put into barks, which were brought almoſt to the ſhore, and afterwards drawn by oxen to the beach. Valencia only wanted a port to make it one of the moſt flouriſhing towns in Spain. Within theſe eight or nine years, government has been occupied in procuring for it this advantage. An able engineer, a pupil of Don Thomas Munoz, was charged with this undertaking. Every thing contributed to his ſucceſs; the ſpecial protection of the captain-general of the province, Don Louis de Urbina, the voluntary ſubſcriptions of the merchants and manufacturers, and an advance on the part of the bank of St. Charles, of 5,000,000 of rials. The new port will have eighteen feet of water, and will even be able to receive frigates. It has been made, not by lowering the beach, but by elevating by arti-

* In Valencia meat is herbs, herbs water, men women, and women nothing.

ficial means the water of the ſea, means ſimilar to thoſe employed in creating a port at Cherbourg *.

Thus the coaſt of Valencia will no longer thoughout almoſt its whole extent remain as it was wont the dread of mariners; for before this modern creation, it did not poſſeſs one ſingle good port. From the Alfaques, at the mouth of the Ebro, to Carthagena, there were but the roads of Alicant and Santa Pola, the bottom of which could be depended upon, or which afforded the leaſt ſhelter in caſe of diſtreſs.

Under the adminiſtration of M. de Aranda, an eſtabliſhment was attempted, which did not realize the expectations conceived. A great number of Spaniſh ſlaves languiſhed in ſlavery under the Algerines in the iſland of Tabarca; Charles III. redeemed them, and afforded them an aſylum ſouth of Alicant, in a ſmall deſert iſland, named from its appropriation *Nueva Tabarca*. The attempt was laudable; it turned out abortive. Nature ſeems to have condemned this iſland to continue a deſert, by refuſing it wood, ſtone, earth, and water.

A different deſtiny awaits the new port of the *Grao*. It has a proſpect of great proſperity, and will no doubt much injure the port of Alicant. Previous even to its being thought of, nothing could be more cheerful than the road from Valencia to the Grao; yet this ſmall village was only peopled with fiſhermen; and the neighbouring ſhore was covered with wretched cabins. A fire having deſtroyed a number of them, they were replaced by pretty uniform buildings, which the proprietors were obliged to conſtruct upon a particular plan: hence ſhortly will reſult a new town, which will not add a little to the embelliſhments of the neighbourhood of Valencia.

In order to be delighted with a view of Valencia and its territory, you ſhould ſee it from the ſummit of the tower near the cathedral called the *Miquelet*. Hence the city appears to be built in the middle of an immenſe orchard, interſperſed with numerous cottages, and the Guadalaviar is ſeen training its diminiſhed tide towards the ſea. Hence you diſtinguiſh the *Albufera*, a lake which runs by a very narrow channel into the Mediterranean; a lake which upon a map, or even at the diſtance of a few leagues, might be taken for a gulph. This lake abounds in water-fowl, the ſhooting of which is a moſt intoxicating amuſement for the Valencians. They eſpecially follow it up twice in the courſe of November. At theſe times the lake is covered with moor-hens, teal, and wild ducks. The ſportſmen in boats drive the flocks before them, and oblige them to take ſhelter among the flags; at length, too cloſely preſſed, they fly away in clouds, and then it is that they are killed at pleaſure. The *Albufera* belongs to the King, who farms it out at 12,000 piaſtres. The farmer ſells his permiſſion to ſhoot upon it. This is a ſport for thoſe fond of ſhooting leſs fatiguing, and more productive than any other.

Strangers are ſhewn the cathedral of Valencia. It is an edifice rather elegant than magnificent, the walls of which are caſed with ſtucco in pannels with gold borders. It contains, among other good paintings, ſome productions of *Joanes*, one of the beſt Spaniſh painters of the ſecond claſs. The *Temple* alſo is highly extolled, it is a modern church built in a ſimple yet noble ſtyle; and the college of the patriarch, the church of which, blackened with ſmoke, poſſeſſes a relic which is ſhewn with much ceremony to thoſe who would ſee it, and thoſe who would not.

* The works of this port have been continually carried on, but the ſucceſs attendant upon them does not juſtify the original expectations. A duty had been laid upon ſilk, the produce of which is appropriated to the undertaking. Different other funds are aſſigned, but winter deſtroys the progreſs of the ſummer. The winds continually bring back ſhoals of ſand to the entrance of the port; and it is much to be apprehended, that all theſe different expences will be a dead loſs.

Other

Other churches as well poſſeſs paintings by *Joanes*, *Rivalte*, and *Orente*, the three painters of Valencia who enjoy the higheſt repute.

What however chiefly give celebrity to the city and kingdom of Valencia are its manufactories. We ſhall ſay but little of that of its cloths, although it contributes materially towards the proſperity of a part of the kingdom, that which lies in the mountains towards the weſt. There are, as it were hidden, the manufactories of *Enguerra*, *Onteniente*, *Concenteyna*, and particularly that of *Alcoy*. They work up moſt of the wool of the country, which, notwithſtanding it be of an inferior quality, makes very good common cloths, and is much in demand for the manufactories of Languedoc. But ſilk is for the inhabitants of this kingdom a matter of far different importance. Twenty years back the produce greatly exceeded their means of converting it into manufactures*; and then the motive of government for preventing its exportation was inconceivable. Now that the number of looms is nearly doubled, the prohibition has a reaſonable motive. The inhabitants are even obliged to import ſilk continually from Italy, and ſometimes from France, as was the caſe after the bad crop of 1784; and as has been the caſe when our manufacturers have been deficient of hands. However, a part of the ſilk of Valencia finds its way out of the kingdom in ſpite of the vigilance of adminiſtration. Its emiſſion from that kingdom to the interior of Spain is not forbidden. There paſſes into Andaluſia a much more conſiderable quantity than its looms can employ; and it is well known, that ſome deſcends the Guadalquivir, which is embarked for England.

The progreſs of the manufactories has greatly encouraged of late years the planting of mulberry-trees. Every where are they planted, and every where do they ſucceed. A few years ago there yet remained between Valencia and Murviedro a large track of poor and barren land, called *El Arenal;* at preſent it is covered with mulberry-trees. A planter there was mentioned to me, who gathers annually as much as twenty pounds weight of ſilk-worm eggs, and poſſeſſes a ſufficiency of mulberry-trees to furniſh them food without neceſſity of purchaſing leaves; and it is common for individuals to poſſeſs five, ſix, and ſeven pounds of eggs. It may not be improper to obſerve, that all theſe mulberries are of the white kind (*moreras*); for, in ſome of the provinces of Spain, the kingdom of Grenada for example, they are black (*morales*). The leaves of the latter yield a ſilk but little inferior to that from the white mulberries.

The leaves of the former are ſold by *cargas*, each carga being equivalent to two hundred and ſeventy pounds French. They are gathered once, twice, and at moſt three times in a year; but it ſeldom happens that the laſt crop is ſo abundant, or of equal quality with the firſt. Beneath ſo auſpicious a climate, the leaf of the mulberry-tree may be gathered through the greater part of the year, but the leaves are plucked only as they are wanted to ſupply the ſilk-worms. The number of theſe leafleſs trunks, which increaſes as the ſeaſon advances, tend greatly to leſſen the beauty of theſe plains, ſo green and ſo productive.

The ſilk of Valencia is comparable for fineneſs with the beſt produced in Europe; but there is a defect in the ſpinning: many thouſand hands are employed who do not all ſpin equally well. Hence an inequality in the tiſſue. Hence when we import it, it is never uſed for fine works.

It is well known, that the beauty of ſilks depends much on the manner in which the ſilk is wound from the cod. This firſt ſpinning is effected in three different manners, according to the reels employed. That which has long been and continues to be practiſed in Spain has this defect; the ſmall threads from ſix, ſeven, or eight balls,

* It is calculated, that the looms of Valencia work up a million lbs. of ſilk.

which are ſtripped at a time, unite to form one thread on the ſpindle, without its being previouſly rubbed againſt another; ſo that the thread of ſilk thus formed is floſſy and eaſily breaks. The ſecond mode of winding is that uſed by the Piedmonteſe; it conſiſts in cauſing each thread of ſilk to be united with another, and not to be ſeparated until they have firſt twiſted four or five times round the other. The third manner is that of *Vaucanſon*, and is an improvement on the laſt. In the reel which he invented, the two threads of ſilk, after their firſt twiſting, unite a ſecond time for the ſame purpoſe. This operation is called the *double croiſade*.

If theſe threads thus wound on the ſpindles be deſigned for the woof, they are ſet in a machine of ſeveral ſtories, where they are ſeparately twiſted. Thence they are removed to another machine where they are twiſted together; after which they are ready for the loom. The threads deſigned for the warp are twiſted only at the inſtant of re-union.

But before the threads are twiſted two togther, they undergo the operation of *la breve*, which conſiſts in ſtretching them over a ſhallow boiler containing viſcous matter, in a ſtate of ebullition, the exhalations from which fit them for uniting one to the other. They are afterwards carried to the machine where they are twiſted. *Organzine* is the ſilk in the ſtate it leaves this machine. It is only in this ſhape that it is permitted to be exported from Piedmont, where the operation of twiſting was better performed (before the method of Vaucanſon was perfected) than in any other country. The method of that ſkilful machiniſt, which embraces all the operations relative to the manufacture of ſilk ſtuffs, is excluſively practiſed by the manufacturers of Lyons; but the ſilk of this country alone can be uſed with the reels for the *double croiſade*, which go by his name; for foreign ſilk, a greater part of which is uſed in theſe manufactories, muſt be organized before it is exported.

For a long time machines to ſave labour, have been known in Valencia as well as at *Talavera de la Reyna*. In the latter town I noticed one ſingle wheel with teeth, which ſet in motion a thouſand of thoſe little ſpindles on which the twiſted threads of ſilk are wound. The machinery of Valencia is on a ſmaller ſcale than at Talavera, for the former place does not like the latter contain a whole royal manufactory comprized in one encloſure. Each manufacturer here meets in diſperſed quarters with the machines and hands requiſite.

As to ſpinning, the Spaniards ſtill adhere to their defective method with an obſtinacy, which the government has latterly thought it right to oppoſe. In 1781 it cauſed a French merchant, eſtabliſhed at Madrid, to enter into an engagement, to ſupply firſt the manufactories of Murcia and Valencia, and in ſucceſſion ſuch others as might deſire them with reels after the plan of Vaucanſon. But Spaniſh idleneſs rejected the adopting of a ſilk, which twiſted in this manner is cloſer and more fine, and requires greater nicety in weaving, without obtaining an augmentation of price, adequate to the extra labour. In conſequence French hands were employed in the firſt experiments of this deſcription.

La Payeſſe, an intelligent manufacturer, eſtabliſhed a manufactory on a large ſcale at *Milaneſa*, near Valencia, wherein ſilk was ſpun, wound, and organized after the manner of Vaucanſon; but this ſilk being dearer by from 50 to 60 rials the pound than that prepared after the Spaniſh mode, it was leſs in demand, ſo that this eſtimable citizen was a loſer by his experiment. Nevertheleſs he was not diſheartened. He called theory to the aſſiſtance of practice, and publiſhed a treatiſe *on the Art of ſpinning, winding, doubling, and twiſting, after the Manner of Vaucanſon*. He even offered to inſtruct the proprietors of ſilk-worms, and direct them in their operations. But it is greatly to be apprehended.

apprehended that theſe attempts will be abortive as long as all the implements uſed in Spaniſh manufactories are in ſuch a ſtate of imperfection, as diſguſts the intelligent obſerver, although it appear not to have ſufficiently ſtruck the government. It muſt, however, be allowed, that in Spain they give the appearance of mohair to their ſilk in Valencia in as excellent a manner as in any other part of Europe. The Valencians owe the perfection to which they have attained to *Don Manuel Fez*, a manufacturer full of zeal, who diſcovered this ſecret by ſtealth among the Levantines, in a voyage to Turkey for that expreſs purpoſe.

But the other branches of the manufactories of Valencia have not of late years improved as might be expected; this is imputable to the regimen with reſpect to ſilks adopted by government, and the almoſt incurable predilection of the Valencians for their old cuſtoms.

The patriotic ſociety of Valencia has however lately attempted to further the progreſs of induſtry *. None has more diligently or more ſucceſsfully exerted itſelf in favour of uſeful eſtabliſhments. This ſociety encourages the planting of mulberry-trees, improvements in the preparation of ſilk, and adjudges prizes to the inventors of new machinery calculated to ſimplify the proceſs of the arts. The patriotic ſocieties of Spain are a modern inſtitution not yet arrived at perfection, but which already ſhews and keeps up a public ſpirit. The French republic, when peace reſumes its empire, will poſſibly find it advantageous to adopt ſimilar inſtitutions, for the purpoſe of repairing with promptitude the injuries ſuſtained by induſtry from the Revolution.

Much has the commerce of Valencia ſuffered from the war between England and Spain. Its port has been almoſt entirely abandoned, and the productions of this beautiful country have experienced, as well in their price as in their ſale, a material reduction. The price of the pound of ſilk, for example, has fallen from five to three piaſtres; which proves what we have previouſly obſerved, that in ſpite of prohibition during peace a great proportion of the ſilk of Valencia is exported.

CHAP. XIII.—*Environs of Valencia.—Benimamet.—Burjaſot, the Chatreuſes.—Murvudro, the ancient Saguntum.—Coaſt of the kingdom of Valencia.—Modern eſtabliſhment of San Carlos.—Paſſage of the Ebro.*

DURING the fine ſeaſon, which compriſes in Valencia almoſt the whole of the year, the environs of the capital are delightful to behold. A number of pleaſing rural habitations have a claim on the curioſity of the traveller. I particularly recommend to ſuch the village of *Benimamet*, half a league diſtant from Valencia, and among its country-houſes that eſpecially occupied ſome years back by *Don Pedro Mayoral*, canon of the cathedral. It is on an eminence in the centre of a garden wherein orange and lemon trees embalm with their fragrance the pureſt atmoſphere. The coolneſs of its alleys, the variety of views it commands, the fertility which ſurrounds it, combine to make it a delicious reſidence. There it is, nay in a hundred places in Valencia, you will find that the ſenſible and elegant Swede who filled the embaſſy to Paris †, erred not widely from the truth when he ſaid, "In this happy country every thing is forgot, you ceaſe "to belong to any nation, to have any buſineſs, are no more a huſband, a father, nor a "friend; you feel yourſelf an inſulated being intoxicated with the beauties of nature,

* Notwithſtanding the recommendations and encouragement of this ſociety, mulberry-trees have rather diminiſhed than increaſed within theſe late years, on account of government not interfering ſufficiently to prevent the augmentation of rice-grounds.

† The Count de Crutz.

"and

" and reliſhing exiſtence." In the garden which brings to my remembrance this rhapſody, and which if it could be realized, would realize the ſtatement I met ſome years ago from the good Canon Mayoral, with a reception which I ſhall never forget. The ſerenity which reigned about him ſeemed to dwell in his ſoul, and was painted in his features. Towards me he was prodigal of kindneſs, as nature had been to him of her gifts. He is no more. *Sit illi terra levis.*

A quarter of a league from Benimamet there is another village on higher ground, called Burjaſot. Here, beſides the tomb of Mademoiſelle L'Advenant, a celebrated actreſs, the Le Couvreur of France, who, more fortunate than her, was allowed without obſtruction an aſylum under ſhelter of the altar, travellers are ſhewn, as one of the curioſities of the country, the *Sichas*, or *Silhos*, which are large cavities from 25 to 30 feet deep, dug in the form of immenſe jars, and caſed with maſonry. They are the work of the Moors, who uſed them as granaries, to which purpoſe they are applied by the Valencians.

Twenty other ſites about Valencia exact the attention of the traveller. If deſirous of ſeeing a fine convent of Franciſcan monks, he may viſit and admire that of San Miguel de los Reyes. He will have it propoſed to him to walk to the three chartreuſes, ſituated in the neighbourhood of Valencia, all of them in a delicious ſituation. One in particular, that of *Porta Celi*, deſerves eſpecial notice; every thing ſhews opulence, every thing tends there to maintain the quiet of the ſoul. Whatever averſion to monaſtic life a man may entertain, he cannot reſiſt a ſenſation of eſteem for thoſe ſilent ſolitaries, not unmindful of the benefits which nature has ſpread around them, who tranquilly laborious, auſtere yet not uncivil, apparently do wrong to none except themſelves. I viſited ſome of their cells, the furniture of them was neatly trim and elegantly ſimple. I walked as well to their cemetery. Its boundaries are marked by palm-trees which ſhade the tombs beneath; beſide them roſes grow as if to prevent the mortal remains of humanity from infecting the air reſpired in this ſacred aſylum. I regretted that it was uncommon thus to repreſent death under leſs hideous forms, and baniſh thoſe images which render it ſo terrible. Why, ſaid I, why endeavour to ſtrew with mournful objects, to ſurround with frightful precipices, this road which none can ſhun? Why not rather aſſiſt mortality to tread this path, if not with chearfulneſs, yet with ſerenity? Away then from the bed of death, away from the bier with objects exciting gloom, or what may alarm thoſe who ſurvive. Let us enjoy free from exceſs, and conſequently from remorſe, the bleſſings the earth ſupplies; and when the organized duſt which the breath of life animates for a few ſeconds, be required again by our common mother, may it ſerve to make fruitful her entrails, and if poſſible adorn her face.

But let us leave Valencia and its charming environs, to reſume the road to Barcelona.

The firſt remarkable place at which the traveller arrives beyond Valencia is the ancient Saguntum, now called Murviedro. The caſtles by which it is commanded are diſcerned at two leagues diſtance. At firſt you are induced to conceive them the remains of the ramparts from which the Saguntines ſo long repelled the Carthaginian hero, but afterwards learn that theſe caſtles were the work of the Moors. They built upon the heights on which theſe caſtles are ſituated ſeven fortreſſes, that communicate with each other by ſubterraneous paſſages, ſome of which are ſtill almoſt entire. It appears that Saguntum was built half way up the eminence, and in particular extended on the other ſide into the plain approaching the ſea, far beyond the ſite of Murviedro, ſince Livy ſays it was not more than a thouſand paces from it; whereas the preſent confines of Murviedro are a league from the ſea.

Murviedro ſtill abounds in ſtones with Phœnician or Latin inſcriptions. The latter are numerous in the walls of ſome of the ſtreets; and there are five of them, remarkably well preſerved, in the walls of a church. It is likely that ſuch as are found on the ſide of the mountain, or even higher, have been carried thither by the Moors, in common with other ſtones for building. Thus, in the walls of their ancient fortreſſes, we find a ſtatue of white marble without a head, and ſome ſtones with inſcriptions placed in an inverted poſition.

The monuments, the remains of which are ſtill in preſervation at Murviedro, date their conſtruction from the period that the Romans, after the brave defence and deſtruction of their town, rebuilt it, made it a *municipal* city, and one of the moſt ſuperb cities to be found out of Italy. They had among others a temple dedicated to Bacchus, the wreck of which is yet viſible, on the left near the entrance into Murviedro; its pavement in moſaic, which was ſuffered to fall to decay through neglect, has been taken up and tranſported to the library of the archbiſhop.

The foundation of the ancient Circus of Saguntum is ſtill diſcoverable, upon which walls, ſerving as an incloſure to a long continuation of orchards, have been built. This Circus, as it is eaſy to perceive, was adjoining to a ſmall river, which was the chord of the ſegment formed by the Circus. The bed only of the river now remains. It cannot be doubted but that, when the mock ſea fights, called *Naumachiæ*, were here exhibited, this bed was filled by the tribute of neighbouring canals which ſtill exiſt.

But of all that remains of old Saguntum, nothing is in ſo good preſervation as the theatre. In it you may plainly diſtinguiſh the different ſeats which the citizens occupied, each claſs according to its rank. At the bottom, in the place of our orcheſtra, are the ſeats for the magiſtrates; next, thoſe for the equeſtrian order; and laſt of all, thoſe for the people. The two door ways at which the magiſtrates entered ſtill remain; alſo two higher up, excluſively reſerved for the equeſtrian order; and almoſt at the top of the amphitheatre, which continues without interruption from top to bottom, the two galleries by which the multitude withdrew, and for that reaſon called by the ancients *vomitoria*; laſtly, the four or five higheſt rows of ſeats which were deſtined to lictors and courteſans, are yet entire, as well as the ſemicircular roof of the whole edifice. On the outſide there yet remain the projecting ſtones, wherein the bars were inſerted to which was faſtened the great horizontal covering which ſheltered the whole aſſembly from the rain and ſun; for the ancients in conſtructing their theatres foreſaw and provided againſt every thing. Every one had a ſeat, and all were ſecure from the inclemency of the weather. Every means was taken to prevent diſorder. In a ſpot ſtill diſcernible the judges were ſeated. If any turbulent ſpectator drew upon himſelf their animadverſion, they had lictors at hand to ſeize him; who conducted him into a private chamber, between which and the judges ſeats there was a communication by a private ſtaircaſe; he was there interrogated, and if found culpable, was confined in a priſon, under the chamber in which he was interrogated, till the concluſion of the repreſentation.

Dean Marti, who has given a detailed account of the ancient Saguntum, eſtimates it capable of containing nine thouſand perſons; and this appeared to me credible. Many wonder how the actors ſhould, in the open air, have been able to make themſelves heard by ſo numerous an audience with their natural voice. However, in 1783, I convinced myſelf it was poſſible by placing a boy where the ſtage formerly was, whilſt I was at the top of the amphitheatre, and making him repeat phraſes, of which I loſt not a word.

No traces of the ſtage remain. Beyond the amphitheatre, of which ſome of the benches towards the centre are ſenſibly decayed, the veſtiges of the place occupied by the actors are with difficulty diſtinguiſhed; it offers nothing but a few trees and ruin-

ated

ated buildings. The front of the ancient ſtage has been converted into an alley of mulberry trees, where rope-makers have eſtabliſhed their moving trade.

No care was taken to preſerve this valuable monument. A goaler had his habitation there, which he extended or changed as convenient. A few poor families build within it wretched huts, of which the Romans, almoſt twenty centuries before, prepared the walls and ceiling. Never was time better aſſiſted in its ravages. The ſacrilege would have drawn tears from Caylus or Winkelmann. At length, in 1787, they began to be repaired. The Corregidor of Murviedro, raiſing from the dead as it were this corpſe of a Roman theatre, relieved it from degradation, and reſtored it for ſome hours to its ancient uſe, by cauſing a Spaniſh piece to be repreſented within its walls.

One of the late captains-general of the kingdom of Valencia, Don Louis de Urbina, improved upon this ſolemn reparation. Under his auſpices it was attempted to make the theatre of Saguntum fit for its ancient deſtination. A Valencian poet, Don Franciſco Bamahonda, compoſed a tragedy, the ſubject of which was worthy of the country and worthy of the theatre; it was the ſiege of Saguntum itſelf, it was that noble ſelf-devotion which covered with aſhes, blood and glory, that land dear to honour, and dear to liberty; but it appears this fine project has vaniſhed into air, at leaſt it is ſaid there is no longer an intention of reviving the theatre of Saguntum, and it is left as before to the obſervations of antiquaries *.

From the place which it occupies you aſcend with difficulty to the ancient fortreſſes of the Moors which crown the encloſure. Upon the platform on the ſummit is an humble hermitage, the inhabitant of which enjoys one of the fineſt proſpects in Spain. It commands the rich plain which ſeparates Murviedro from Valencia. Thence you ſee the ſteeples of this capital riſing through the orchards by which it is ſurrounded. Before, you behold in perſpective a conſiderable part of the Mediterranean, the ſhores of which are covered with vineyards, olive and mulberry trees, from Murviedro to the edges of its banks: on the left a chain of hills bounds the horizon, and inſenſibly diminiſhes to a level with the ſea, leaving no interval but that formed by the road to Barcelona.

The wine in the environs of Murviedro is ſtrong and well taſted; but moſt of it is converted into brandy, which is put into barrels and conveyed to a ſmall port about a league from Murviedro, whence they are ſhipped for the North, for France, or for Spaniſh America, which, ſince trade has been thrown open, afford a conſiderable market for the brandies of the coaſt of Valencia.

Beyond Murviedro, vaſt fields ſhaded by olive trees and carobs, rich vineyards, and pictures of the moſt chearful fertility accompany you, as you travel over a ſuperb road, the whole of the way from that town to *Caſtillon de la Plana*, a borough ſeven leagues from Valencia.

At a great league from Murviedro we ſtopped awhile at Almenara, a village agreeably ſituated on an eminence. Here I found five curates tranſported from the Rouſſillon, to whom government had granted an aſylum in a convent of Dominicans. It was conſequent that many of theſe exiles would ſeek refuge in preference in a neighbouring ſtate of the catholic perſuaſion; and on the way I ſcarcely paſſed a league without meeting with ſome. At firſt they took up their reſidence in the capital, and moſt conſiderable towns of the peninſula, hoping to find in theſe places greater reſources than elſewhere. They excited in the beginning a double intereſt, as objects of diſtreſs, and perſecuted martyrs of religion. The faithful, in their blind veneration for theſe victims, went ſo far as to prefer them to their own prieſts, the more ſo, from wretchedneſs obliging thoſe

* It was Townſhend, the Engliſh traveller, who firſt drew a momentary attention to this theatre.

to cheapen, if I may uſe the expreſſion, the ſpiritual treaſures they diſpenſed. The intereſts of mortality ſoon however ſpake louder than the intereſts of heaven. The indigenous prieſts took umbrage at the proſperity of the intruders; and whether government paid any reſpect to their repreſentations; whether they conceived it dangerous to ſuffer thoſe delicate queſtions, which relate to the rights of kings and ſubjects, to be diſcuſſed in places where numbers were collected together; it diſperſed the French eccleſiaſtics over a larger ſurface. It ordered ſome to the convents of the interior, and even fixed the number that each was allowed to receive.

To return to Almenara. From this pretty borough to Caſtellon the country is rather leſs fertile, although every where well peopled, and enlivened by induſtry. We paſſed through two large towns, *Nulis* and *Villareal;* after which we croſſed (a thing ſufficiently common in Spain) by a very handſome bridge, a large river which was nearly dry.

After you leave Caſtellon fine roads are no further continued, and nothing can be more ſudden than the tranſition. Deſcending by an extremely rugged road, you approach the ſea, which is kept in ſight for the ſpace of a league. You afterwards have to encounter a very ſteep hill, and are terribly jolted until you arrive at the caſtle of *Oropeſa*, ſituated on an eminence near the margin of the Mediterranean. Thence, as far as *La Venta de Senienta*, the road is tolerably ſmooth. After paſſing Caſtillon, the ſoil is perceptibly leſs rich. The whole country you travel over in ſurmounting the hill of Oropeſa is unpeopled, and preſents the moſt hideous aſpect; beyond it, the country is a little cultivated, but ſtony roads ſtill continue as far as *Alcala de Sibert*, a kind of town half way up a hill, in a country not the moſt cheerful or productive.

At length you re-approach the ſea, and the laſt ports of the coaſts of Valencia.

The firſt that you meet with, after having wound about with difficulty amidſt the mountains, is *Benicarlo*, inhabited principally by fiſhermen. Here begin the flat roofs, and jargon of Catalonia; this is a ſpecies of corrupt Spaniſh, which greatly reſembles the patois of Rouſſillon, without a knowledge of which it would be difficult for a perſon to make himſelf underſtood in Catalonia.

At a great league from Benicarlo is another more important port, *Venaroz*, a large town of pretty good appearance, containing from eleven to twelve hundred houſes. The environs of Benicarlo and *Venaroz* are planted with vines, the produce of which is converted into brandies, which are exported. Venaroz is not, properly ſpeaking, a ſea port. I found there, however, about fifty ſmall veſſels; theſe, inſtead of laying at anchor, were on the beach out of water. Many of theſe barks go coaſtwiſe as far as Cadiz and Marſeilles; ſome even venture to the Havannah.

At a league beyond *Venaroz* the fine road began again in 1793, with a ſmall bridge newly conſtructed on the ſpot, which forms the limit of Catalonia and the kingdom of Valencia; and was continued three leagues to San Carlos, a new eſtabliſhment which deſerves detail.

San Carlos is directly on the ſea ſhore. It is the capital of the eſtabliſhment of the Alfaques, a name given to a fort of port formed by the mouth of the Ebro. The Alfaques, properly ſpeaking, are a long tongue of land, narrow and ſemicircular, being a prolongation of the left bank of that river. San Carlos is ſituated oppoſite to this point of land; and this is the point of the coaſt which ſhips make for. It conſiſts of two fine buildings placed along the road. A large oblong ſquare ſeparates them from another row of ſymmetrical buildings, one of which may rank among the beſt taverns in Spain. It is extremely clean, and tolerably well furniſhed; it has alſo a good larder: but with reaſon we may again aſk the Spaniards why, like ſo many others, is this hotel kept by a

Milaneſe? The Mediterranean waſhes its walls. When I paſſed it in 1793 they were ſtill at work on the new port. The object of this eſtabliſhment begun in 1780 was to people a peninſula, up to that time a waſte, and to render the mouth of the Ebro of ſervice to navigation and trade. In this narrow peninſula there was more than a thouſand acres to diſtribute, but few coloniſts up to that period had gone thither to eſtabliſh themſelves, on account of the land belonging to individuals of Ampoſta, and ſome neighbouring villages for the moſt part, who go thither to cultivate it, without changing their abode. The project of government was to dig a large port on this ſpot, and ſo facilitate the paſſage from the Ebro, which is much incumbered below Ampoſta. For this purpoſe a canal was begun at this latter place which was to end at San Carlos, and on which canal, as early as 1793, all the materials neceſſary for this eſtabliſhment were conveyed in flat bottomed boats. By deepening this canal, it will be made navigable from Ampoſta to San Carlos; thereby rendering the Ebro paſſable for ſhips to ſea. A deficiency of funds retarded in meaſure the works. In 1793 a battery was begun in advance before San Carlos. All theſe works were under the management of a Parmeſan of the name of *Nodin*, a ſkilful artiſt to whom is owing all the ſucceſs of the plan. But here again, why do the Spaniards leave the province of embelliſhing, enlivening and fortifying their coaſts to Italians?

This eſtabliſhment however was not very far advanced in the ſpring of 1793, and probably will never produce all the effect expected by the court *; the largeſt veſſels, however, may anchor within muſket ſhot of San Carlos, and at the period I was there, the greater part of the regiments from the different parts of the Mediterranean, intended for Catalonia, came thither to diſembark. But the air of San Carlos is unhealthy; and it is not at the ſimple ſignal of a government that commerce the moſt capricious of all deſpots forſakes its old reſorts.

CHAP. XIV.—*Entrance into Catalonia.—Paſſage of the Col de Balaguet.—Cambrils.—Tortoſa.—Reus.—Tarragona.—Roman monuments.—Montſerrat.*

THE Ebro croſſed, you traverſe an immenſe unpeopled diſtrict, moſtly covered with heath. The whole of this country is interſected by ravines, which renders it extremely laborious to travel over in a coach. Thus did we journey for five weariſome leagues before we deſcended into the miſerable borough of *Prellos* in the bottom of a baſon ſurrounded by a double rampart of mountains. We here ſecured two aſſes which were brought to the place where we ſlept. The frightful deſcription given us of our next day's journey, had made us think this precaution neceſſary.

It is my opinion one of the moſt ſtriking phenomena in Europe to a traveller, to find in a country ſo well known as Spain, between two cities ſo conſiderable as Valencia and Barcelona, almoſt cloſe to the ſea-ſhore, near the mouth of a great river, and on a road ſo much frequented by travellers of all claſſes, and of all countries—to find, I ſay, ſuch vaſt diſtrict ſo much deprived of reſources, and ſo deſtitute in appearance of all thoſe comforts which luxury and civilization bring in their train, and every where engender. This is a reflection the moſt ſuperficial obſerver cannot refrain from making, particularly between the borders of the Ebro, and the vicinity of Barcelona. I doubt whether in the midſt of Siberia, or about the gulph of Bothnia, a traveller would be more bare of reſources or conſider himſelf more abandoned by the univerſe.

* This prediction has been verified; ſince 1793 conſiderable ſums of money have been expended on the eſtabliſhment of San Carlos, and yet it is imperfect.

From

From Perellos the diſtance is two ſhort leagues to the *Venta del Platero*, a tavern ſtanding entirely by itſelf at the foot of mountains, and emboſomed in woods. We had ſome merchants for fellow travellers, who gave us ſmall comfort by their deſcription of our morrow's journey, the more difficult for us according to them, from the number of our party, and our being burthened with two children of a very tender age.

We began this painful journey by ſix o'clock in the morning, myſelf on foot, my wife ſeated on one of the animals we had hired at Perellos, and our two children in panniers on the oppoſite flanks of the other, ſheltered as well as we were able from the keen North wind. Thus did we travel for two leagues and a half over the moſt horrid country; afterwards we climbed by a long ſpiral march the famous *col de Balaquet*, a ſteep mountain near the ſea. As we arrived at the ſummit we found ourſelves at the foot of a diminutive fort, which had in garriſon a ſmall detachment of Walloon guards.

Four leagues farther, after having paſſed through a ſmall village on the ſea-ſhore, by a tower, and the ruins of an old caſtle, and after getting through ſome very rugged paſſes, we arrived at Cambrils, a town of three or four hundred houſes on a wretched beach, where ſome few barks reſort for loading wines. Its ſite is very unhealthy and tertian agues are very common. This ſcourge had ſhortly before depopulated a convent of Auguſtine monks, the ſolitary walls of which were pointed out to our party.

An unhappy family of pilgrims with which we had climbed the mountain of Balaguet, reſided in this place. It had been in ſearch of health to the miraculous image of *Vinaroz*, and brought back but addition to their miſery. A mother, four or five young girls with their feet bare, and with rags, with two infants periſhing with cold, and nipped with hunger, were treading back their weary ſteps, invoking by the way the pity of travellers, ſometimes more eaſily excited than that of heaven. What ſad reflections did the ſight of theſe wretched victims of fate and ſuperſtition excite in our breaſts! Unfortunate family! It returned on foot, without means of ſupport, from a weariſome and fruitleſs expedition, and yet appeared reſigned! And I, and I to murmur, at rough paſſages that jolted my berline, tight, and well hung, and well provided with neceſſaries, with whatever was uſeful, and even with luxuries! I reproved myſelf for poſſeſſing theſe conveniencies as well as for my murmurings. Almoſt did I reproach myſelf on account of the modeſt conveyance for my wife and children. I appeaſed my remorſe by giving them charity, which at firſt was received with an effuſion of gratitude; at length the chief pilgrim chilled my compaſſion by her importunities, her want of feeling to the unfortunate beings ſhe carried or dragged in her train, and above all by the offer ſhe made me of telling my fortune. At firſt I imagined I had found a pious and devout woman, a tender mother. My heart was froze at the mere aſpect of a mercenary gypſey. How frequently would pity be barren, or even give place to calloſity, if the torch of examination were ever to light with its blaze! Is it not a bleſſing on the part of heaven for the unhappy, that it often poſſeſſes the unreflecting promptitude of inſtinct. I come back to Cambrils.

This bad port is frequented only by ſome barks which take in lading for Cadiz, Genoa, and ſome other places. If overtaken off this beach by bad weather, they make for Salo, which is but half a league diſtant.

From Cambrils we went by a narrow and very rugged road for the ſpace of four leagues, and ſlept at *Serrafina* after paſſing through the pretty borough of *Villaſeca*.

Travelling from the Ebro, we left *Tortoſa* on its left bank, ſituated on the ſlope of a mountain, four leagues from the ſea. It is an epiſcopal ſee, and contains ſixteen thou-

ſand inhabitants. Its neighbourhood is highly cultivated, and it carries on a buſtling trade in wheat, owing to its poſition on the Ebro, which is ſufficiently deep to carry large barks. Leſs than a league from the town thoſe famous quarries of marble are ſituated, known by the name of *Tortoſa-jaſper*. Nothing can be more melancholy, more deſerted than the ſpace of fifteen leagues which ſeparate Tortoſa from Cambrils; and few roads are leſs paſſable than that from Tortoſa to Terragona.

From Cambrils the plain ſpreads, and here you again meet with plantations of olive trees, carobs, and vines, in tolerable abundance.

From a league beyond Serrafina you perceive the ſpires of Terragona, an ancient town in a picturesque ſituation, on a ſteep and rocky eminence. A colony of the Scipios, it remained for a length of time the ſeat of the Roman government in Spain. The ſea bathes its walls, and forms a little port, the trade of which has greatly diminiſhed ſince Reus has become more frequented.

Reus * is a modern town, which induſtry in a ſhort ſpace of time has raiſed to a high degree of proſperity. It is ſituated inland, about four leagues North Weſt of Terragona, from which it is ſeparated by one of the moſt fertile and beſt cultivated plains in Spain. The inhabitants of Reus uſe the port of Salo for exporting their fruits, wines, and brandies. The proſperity which they enjoy is one of the miraculous creations of induſtry, and well deſerves the traveller ſhould turn out of his road a few leagues to be a witneſs thereto. Under the direction of an Engliſh houſe at Reus there is one of the fineſt diſtilleries in Europe, it has alſo a pretty theatre, very handſome barracks, and the image of activity and abundance in every quarter. A quantity of hides are dreſſed here, as well as at the town of Bails or Vells which is not far from it.

The inhabitants of the ancient Terragona ſtruggle as well as they are able with their new rivals. Emulous of reſtoring to their harbour its former proſperity, they have undertaken at their own expence to improve it, by throwing out jetties, which will render it more commodious and ſafe. The court has given them aſſiſtance in this undertaking, by making ſome conceſſions in their favour, and by exempting them from divers impoſitions. Even war has not deterred them from the proſecution of their patriotic meaſures †.

Below the town of Terragona, and before you enter it, you ford the little river Francoli, which empties itſelf cloſe by into the ſea. Terragona was formerly a place of ſtrength, and part of its ancient walls remain. When I paſſed it in 1793 a fort had juſt been conſtructed there with embraſures. Its object was chiefly to prevent an approach to the beach. You may keep on the road to Barcelona, without entering Terragona; but curious to ſee this celebrated town, I climbed up to it by a ſteep path. I was ſtruck with the beauty of its poſition, but found its interior mournful and deſerted. Rocks on every ſide render the approach to it difficult, and moſt particularly ſo for carriages. Its cathedral is handſome, but gloomy and ſupported by pillars of an enormous ſize.

Terragona contains a number of Roman monuments. Such are the remains of a circus, an amphitheatre, the ruins of the palace of the Emperor Auguſtus, a heap of Roman inſcriptions, and above all the remains of an aqueduct, extending for ſix or ſeven leagues, which in 1782 it was in contemplation to re-eſtabliſh.

* The manufactories of Reus have ſuffered in the laſt war; but the activity of the Catalans may be relied on for their reſtoration.

† It has not been crowned with ſucceſs. The works begun at the port of Terragona have been abandoned.

As

As you leave the gate which leads to Barcelona, you defcend almoft perpendicularly to regain the great road. The environs of Terragona, are, however, chearful and well inhabited. You have an almoft uninterrupted fucceffion of pretty houfes, from the town to the hamlet of *Figaretta* about a league diftant.

Two great leagues beyond you pafs under a handfome triumphal arch, formerly intended, without doubt, to immortalize fome exploit on a frequented fpot; at prefent it ftands by itfelf in the midft of the country. It is in tolerably good preffervation, except its capitals which appear to have been of the Corinthian order, and which it has been attempted to renew. The learned in Spain have no doubt of its being erected in Trajan's time. A league to the rigth of the road is another monument, which has received much greater damage, called the tower of the Scipios, from tradition handing down that two Romans of that name were buried there. Notwithftanding the ravage of time has worn away all the forms, you may yet diftinguifh two flaves in an attitude of grief.

A little beyond the triumphal arch, you find the pretty village of *Altafolla* delightfully fituated, and another called *Torre del Embarr* on an eminence near the fea. This laft has a fort of port or road which receives a few barks.

The whole of this country, which we travelled over in the beginning of March, with the Catalonians the infancy of the year, appeared to us fingularly pleafant from the mildnefs of the climate, the variety of cultivation, and the lovelinefs of certain pofitions. All that it wants is roads a little lefs rough.

The great village of *Vendrell*, where the French conful at Barcelona, *Aubert*, had an eftate, is fome leagues from the Torre del Embarr. I obferved with pleafure in its neighbourhood a new and pretty chateau, a true country houfe placed on the fide of a hill in an agreeable fituation. I learned that it had been recently built and was conftantly inhabited by Mr. Peru de Soulis, a modeft agriculturift, who, differing from the major part of his countrymen, adopted exclufively a country life. In a country where the fine feafon of the year is of nine or ten months' duration; where the winter never fevere fcarcely changes the robe of the fields, that this inclination fhould be fo unufual is extraordinary.

Beyond Vendrill you crofs a rather arid country, to reach the pretty borough of *Villafranca*, on leaving which you have before you a chain of mountains, which fringe the borders of almoft the whole horizon. There the famous monaftery of Montferrat is fituated, fteep and folitary afylum of thofe monks, who have fixed the attention of more than one traveller, and among whom I underftood fome prelates from France had retired.

The monaftery of Montferrat is eight leagues North Weft of Barcelona. The only remarkable place in this diftance is the borough of Terrafa known for its manufacture of fine cloths. The monaftery is fituated on the flope of a high mountain, and joins the church, which is one of the moft remarkable monuments of fumptuous fuperftition. It contains eighty lamps of filver, chandeliers, relics, croffes, and bufts, all of the fame metal, crowns enriched with precious ftones, magnificent veftments, &c., the whole deftined to the decoration of a miraculous virgin.

What an extravagant profufion in a country in which induftry has yet fo much need of affiftance! I fhall not preach either the profanation or violent fpoliation of temples. Thefe fudden reforms, thefe fits of perfecution, prefuppofe and bring on other exceffes. Recommended perhaps by reafon they are executed by rage; and the obloquy thereof is the fmalleft damage they occafion. But were thefe treafures appropriated to render the communication perfect between Valencia and Barcelona, between Barcelona and Saragoffa,

Saragoſſa, and to vivify the interior of Catalonia, of which from the coaſts you would form a too favourable opinion; theſe treaſures, would they do leſs honour to the divinity whoever it may be to whom they are conſecrated; and would the guardians of them be leſs happy, or leſs revered?

They are thirteen or fourteen in number. Their hermitages are diſperſed over the top of the mountain, and occupy the ſpace of near two leagues, as far as to its greateſt height. The moſt elevated, that of Saint Jeremy, commands a magnificent proſpect over immenſe plains. You thence diſcover the courſe of rivers, towns, ſome iſlands, and an unbounded ſea. The inhabitants of theſe ſolitary retreats are doubtleſs little ſenſible of theſe beauties daily ſeen; but ſetting aſide that devotion ſo much calumniated, the illuſions of which are capable of embelliſhing a deſert, they live here a ſweet, tranquil, and even agreeable life, without any appointed labor, without any inquietude, as to their ſubſiſtence, without remorſe, but not without auſterity. In the midſt of their ſtagnant wealth, in the very lap of abundance, they remain content with a happy mediocrity; the hoſpitality which they exerciſe towards travellers being almoſt their only expence. Allow that philoſophy proſcribe, that policy reform, it muſt be cruelty itſelf that could ſpeak ill of them. I return to the road to Barcelona.

Beyond Villafranca, the road is traced out, and even begun, but in 1793 it was ſo much neglected, ſo uneven owing to pieces of rock, that I wiſhed even a ſcore of times it had never been projected but on paper. The bridge was the only part of the road that had been carefully attended to. To begin with one of them which is a good quarter of a league from the tavern called *El Oſtal d'orda*, you find a ſmall portion of ſuperb highway, after which you turn ſhort on the right to be jolted on as bad a road as any there is in Spain. From ſhock to ſhock, one almoſt falls down a narrow, very ſteep, and ſtony road, which follows the ſide of a profound valley. In order to avoid this really formidable paſs, a moſt bold deſign was projected no leſs than to unite the two oppoſite mountains by a ſort of bridge of three ſtories. It was obliged to be abandoned. But the very attempt was grand. A foot path-way along the valley, paſſes under the arcades of this bridge, and enables the paſſenger to form an idea of this gigantic plan.

Beyond this valley you find yourſelf again on a tolerable road, which leads to one of the fineſt bridges in Europe. It is five hundred and forty paces long, and embraces the whole of the wide river *Lorregat*. It takes its name from a village on its other ſide called *Molinos del Rey* or Remolinos. The country you paſs over to arrive there, is pictureſque but wild. High mountains form almoſt the whole boundary of the horizon, and induſtry ſtruggles with an arid ſoil on their enormous ſides; the plough having furrowed every part of it which is not inacceſſible.

CHAP. XV.—*Neighbourhood and interior of Barcelona.—Fortreſs of Montjouy.—Details reſpecting Catalonia.—Corvera.—Dioceſe of Solſone.—Mine of Cordona.—Lerida.—Courſe of the Segre.*

FROM *Los Molinos del Rey*, the road is good for four leagues before you arrive at Barcelona. Nothing can be more chearful, more animated, or more rich than the proſpect as you approach this capital, in every reſpect ſo worthy of the curioſity of the traveller. Its port, which however is neither ſpacious nor very good, greatly contributes to its embelliſhment. Two ſmall rivers *El Lobregat*, and *El Beſos*, which empty themſelves near the town, throw up ſand in ſuch manner as to make it ſhallow in ſpite

of every means of prevention. It is formed by a ſort of hedge placed between the citadel of Montjouy, the town, and Barcelonetta, a ſmall modern town built by the Marquis de la Mina, governor of Catalonia, whoſe tomb is in one of the churches. It is in this quarter that the moſt remarkable objects in Barcelona are ſeen; the fine promenade in the manner of a terrace, which runs the whole length of the port; the *Lonja*, a new building in which are united a ſchool for drawing, one for pilotage, and one of trade; the palace of the captain general, which, in ſpite of its defects, has a very impoſing appearance; and above all the new cuſtom houſe, a magnificent edifice which was ſcarcely finiſhed in 1793.

Every thing at Barcelona wore the appearance of a ſpeedy war, and in the minds of the common people there exiſted great animoſity towards the French.

In no town of Spain reigns there more apparent activity, or more real induſtry, notwithſtanding the cauſes of idleneſs and depopulation which yet exiſt at Barcelona as well as elſewhere. For here are eighty-two churches, twenty-ſeven convents of monks, eighteen of nuns, and ſeveral congregations. According to the cenſus of 1787 Barcelona contained one hundred and eleven thouſand four hundred and ten perſons. In no part whatever has population ſo ſenſibly increaſed, if it be true, as is averred, that in 1715 Barcelona numbered no more than thirty-ſeven thouſand ſouls, and that on the diſembarkation of Charles III. in 1759, it ſtill poſſeſſed no more than fifty-three thouſand. What however may render credible this rapid increaſe, is the prodigious quantity of buildings erected within theſe few years, not only within the town, but as well and more particularly in its neighbourhood; inſomuch, that Barcelona for the number and convenience of its country houſes is inferior to very few towns in France. Marſeilles, which reſembles it in ſome reſpects, which may be likened to it, although in many inſtances ſuperior, yet cannot compare its territory with that of this town; where at once you meet with beautiful landſcapes, a greatly varied tillage, the buſtle of induſtry, and every ſymptom of opulence. To the charms of ſuch a neighbourhood be there ſuperadded the advantage of a fertile ſoil, and a climate which, without being torrid, cauſes all the productions of hot countries to proſper; the great concourſe of foreigners met with; a numerous garriſon; the means of inſtruction furniſhed by ſeveral literary ſocieties; an anatomical theatre; ſome public libraries; a cabinet of natural hiſtory, which Tournefort highly prized, and enriched with a precious collection of plants from the Levant; the cabinet of a private individual, for the variety and choice of the curioſities of the three kingdoms which it contains, it might excite the envy of more than one little ſovereign; fine walks, numerous and ſelect ſocieties; the variety of occupations in which commerce and induſtry are employed; let theſe be ſuperadded, and it muſt be allowed, that there are few towns in Europe wherein a man can live more pleaſantly, or with more numerous reſources, than at Barcelona. Barcelona, however, is yet not what it might become by a great deal, the cauſe of which may eaſily be divined.

The lovers of the fine arts will admire here three paintings by Mengs; and thoſe of antiquities, ſix fluted columns of the Corinthian order, the remains of a ſuperb edifice, reſpecting the deſign of which the learned do not agree, the remains of an amphitheatre, thoſe of a bagnio, many trunks of ſtatues, and, to conclude, a multitude of inſcriptions which continue to puzzle the learned.

Barcelona, in a military point of view alſo, is a very important city. It may be remembered, what a long reſiſtance it oppoſed in 1714 to Marſhal Berwick, and of how much value Philip conſidered its ſubjection, without which he could not deem himſelf ſecure upon the Spaniſh throne; and that in the late war with France, the ſecond diviſion of troops employed in which obtained ſuch brilliant ſucceſſes on the ſide of Catalonia, our victorious

victorious generals aſpired to the capture of this place as a deciſive event. Its principal force conſiſts in a vaſt citadel which defends it towards the Eaſt, and Montjouy which overlooks and protects it towards the Weſt. Montjouy is a mountain of ſome height, on the ſummit of which is a large fortreſs capable of containing a numerous garriſon. Fortified with great care on the town ſide, it is exceeding ſteep towards the ſea. Of an impoſing aſpect at firſt ſight, it quickly appears to the tactician who examines it, too ſpacious, too much overloaded with works, more maſſive and expenſive than uſeful, and particularly too much elevated to be formidable to a beſieging army occupying the plain.

Barcelona principally owes its ſplendor and wealth to its induſtry, and the number of its manufactories. The moſt remarkable are Indianas and ſtained linens, of which there are one hundred and fifty. Their manufactories of lace, blonds, and thread employ twelve thouſand hands; and an equal number is occupied in ſilk articles, ſuch as galoons, ribbons, and ſtuffs of different deſcriptions.

The population of Catalonia amounts to twelve hundred thouſand ſouls. However much favoured by nature, however much in general alive to induſtry, one ſhould form far too favourable an idea of them judging from a ſight of their capital and the coaſt. In the interior part of the kingdom are many deſert cantons, ſeveral of which it would be difficult to draw from their ſtate of barrenneſs; however, induſtry has ſhewn itſelf wherever it could do ſo with advantage. Notwithſtanding the quantity of wood which has been felled ſince the reign of Ferdinand VI. for different objects of utility, it ſtill poſſeſſes a ſufficient quantity for firing, for the demand of manufactories, and even for ſhip-building; although it imports conſiderably from Ruſſia, Holland, England, and Italy. Cork-trees (*alcornoques*) particularly abound in their foreſts, ſo that it annually freights as many as five-and-twenty veſſels with cork for the north, and ſends a number of corks to Paris. I have been informed there is a cutter who furniſhes four thouſand per diem. Catalonia contains, beſide a number of walnut-trees of much uſe in carpenter's and joiner's work, an immenſe quantity of almond, ſmall nuts, orange and fig-trees, the fruit of which is exported in quantities to the north. The only wood of which it does not produce ſufficient to correſpond with the demand is oak for ſtaves.

Notwithſtanding the proſperity which Catalonia at preſent enjoys, it is yet not ſo populous, and poſſibly leſs induſtrious than it was in the fifteenth century. At that epoch, cloths manufactured at Barcelona were ſent to Naples, Sicily, and even as far as Alexandria. The modern Catalans, it muſt be allowed, are more anxious of doing a great deal than of doing it well. The manner in which their articles are finiſhed, and their taſte, do not anſwer the quality of the primary ingredients they employ. The high roads likewiſe in Catalonia are in general greatly neglected. It is far from reaping all the advantage it might from its ſoil. What variety of marble does it not conceal! How many mines might there not be opened! There is in particular ſeveral of coal, the working of which, propoſed at different periods, has conſtantly met with obſtructions. Among others, one has been diſcovered of great promiſe at Montanola, in the dioceſe of Vique.

Lerida is, next to Barcelona, the moſt important town in Catalonia. It is twenty-five leagues from this capital. In the ſpace between them you meet with towns and villages at every hour, except on the four laſt leagues. The five firſt croſs a country rich in the gifts of nature and induſtry, and the ſucceeding four evince more than any other diſtrict whatever, the enterprizing activity of the Catalans.

Farther on one meets with *La Noya*, a ſmall but very capricious river, which is forded a dozen times, which frequently damages the country, but which is conſtantly its chief

ſource of benefit. It ſets in motion numerous mills, and particularly many for paper, with which the owners ſupply a great part of the conſumption of Spain and the Indies. This is a particular branch of induſtry which within theſe few years has made an aſtoniſhing progreſs. In 1777 Catalonia contained no more than one hundred and twelve paper-mills. In 1778 it had more than three hundred. The annual profit derived from them is reckoned to amount to a million of piaſtres.

On the road from Barcelona to Lerida you paſs by the towns of *Igualada* and *Cervera*. The intervening country is not ſo fine, nor ſo well cultivated. Corvera, built on an eminence in the midſt of a vaſt horizon, belongs to the dioceſe of Sonſona, a part of which is mountainous, but the greateſt part abounds in every deſcription of grain and vegetables.

Corvera, a town containing five thouſand inhabitants, has an univerſity much reſorted to, which was founded by Philip V. at the period of his ſuppreſſion of thoſe of Catalonia; for the reſentment of the conqueror, irritated by the long reſiſtance he met with, extended to every thing. Notwithſtanding this, Catalonia, the theatre of ſuppreſſions, and innovations of every deſcription, has deceived the calculations of revenge; for, deprived of its privileges, and ſubject to particular taxes, it ſtill remains a province the leaſt aggrieved, and the moſt induſtrious in Spain; and the faithful Caſtilians have more than one reaſon to envy the rebellious Catalans. Hence the Catalans and Caſtilians remain to our days two diſtinct people; rivals, and enemies, they nevertheleſs in the laſt war with France united in their wiſhes and their efforts, the prieſts and the court having ſucceeded in perſuading them that both were fighting in a common cauſe. Individuals, nations, whatever your habitual paſſions, it is the intereſt of the moment by which you are guided; juſt as in rhetorical diſcuſſions, the mob is ever on the ſide of the laſt ſpeaker.

The dioceſe of Solſona however ſuffers by its diſtance from the capital and the coaſts; and more vigorous efforts are there made for the encouragement of induſtry; the biſhop in particular has been very ſucceſsful in his attempts at vivifying the neighbourhood of his reſidence. Iron is manufactured there with advantage; this, with works in ſilver and gold, cotton, cloth, and lace, employ a great number of its inhabitants, and tillage is very nicely attended to, fallows being unknown. Vines in this quarter do not flouriſh at the expence of grain, but both ſpecies of cultivation are united without injury one to the other.

Cardona, a ſmall town of the ſame dioceſe, has a ſmall mine within its territory, which art has rendered very prolific; it is known to all naturaliſts, and is perhaps the only of its kind in Europe *.

Lerida is ſituated at the weſtern extremity of Catalonia. Grain, hemp, olives, vines, fruits, and vegetables of every deſcription abound in its neighbourhood. Some canals of irrigation beſpeak the active induſtry of its inhabitants, and increaſe the fertility of this plain, formerly celebrated by Claudian.

You enter the plain by a fine bridge over the Segre, which bathes its eaſtern ſide. It is placed at the foot of a hill, on which are the ruins of a caſtle formerly very ſtrong.

The banks of the Segre, and the environs of Lerida, cannot be ſeen without a lively intereſt by men verſed in military lore, nor by thoſe more numerous far, who are fond of treading a ground rendered illuſtrious by the march of heroes. I mean leſs to allude

* For an elegant deſcription of the mine of Cardona, ſee the Dictionnaire d'Hiſtoire Naturelle de Bomare, tome xiii. page 167, 169. of the fourth edition.

to

to the ſieges and battles of which this country was the theatre at the beginning of this century, than to that ever-memorable campaign, in which perhaps more than in any other Julius Cæſar diſplayed the talents of a great captain while oppoſed to the lieutenants of Pompey; a campaign which furniſhed Guiſchard with matter for one of his moſt learned and moſt intereſting commentaries. In travelling from *Balaguer* to *Mequinenza* one ſhould have his book in hand, in order to find in a military memoir all the inſtruction of hiſtory combined with whatever can be moſt ſtriking in romance.

The courſe of this river, whoſe caprices and overflowings oppoſed to Cæſar eighteen centuries ago obſtacles which required all his genius and conſtancy to ſurmount, continues to be ſtill as it was then at all times beneficial to the country it waters, but frequently a ſcourge. The town of Lerida eſpecially is much expoſed to its ravages; to preſerve it from them, its laſt governor General Drouhot, a Fleming by birth, had a jetty built, which contributes much to the embelliſhment of the town, and which may be added to the liſt of uſeful works for which Spain is indebted to foreigners.

Before you arrive at Lerida, the Segre, which takes its ſource at the foot of the Pyreenes, has previouſly traverſed the plain of Urgel, the moſt fruitful in grain of any in Catalonia. But eaſy communications are peculiarly wanting to the weſtern part of this province. Its roads are ſo narrow and ſo bad, that its rich and numerous productions can be tranſported no otherwiſe than on mules.

CHAP. XVI.—*Road from Barcelona to the Pyrenees.*

I RETURN from my excurſion to Lerida, and reſume the road leading from Barcelona to the Pyrenees.

Beginning with this capital, induſtry and population are in a flouriſhing ſtate the whole length of the coaſt. The firſt ſpecimen of this is met with at *Badalona*, no more than a league from Barcelona. Four leagues beyond this, you paſs through the pretty town of *Mataro*, remarkable for its cleanlineſs and buſtle. It contains no more than nine thouſand inhabitants; but it manufactures of cotonnades, ſilks, and more eſpecially of lace, the excellent ſtate of culture of its territory, its commerce, of which wine forms the principal part, make it altogether one of the moſt important places upon the coaſt.

The road from Barcelona to Mataro is very pleaſant; but nothing throughout all Spain ſeemed to me comparable with the ſucceeding day's journey. A new road parallel to the ſinuoſities of the coaſt, aſcending and deſcending at intervals the tops of hills, at periods ſomewhat ſteep, at others cut in the rock, paſſes through moſt charming towns, which, by the manner in which their ſimply ornamented houſes are built, by their neatneſs, and even the active but unnoiſy buſtle of their inhabitants, brought to mind the moſt agreeable diſtricts in Holland. Forget the wintry atmoſphere of that province; give it the climate of a warm country delightfully temperate, and refreſhed by breezes from the ſea; ſubſtitute for the mournful and ſilent courſe of the narrow, muddy canals of Batavia, the vaſt extent and agitation of its waters; retain every thing attracting it receives from induſtry, and you will have an idea of the country which extends from Barcelona to Malgrat.

Some of theſe towns, which form a ſtriking contraſt with the reſt of Spain, deſerve to be mentioned. On leaving Mataro, you arrive next to *Arens de Mar;* where begins the dioceſe of Girone; and which has its little dock-yard, and pilot's ſchool; *Canet de Mar,* a town moſt pleaſantly ſituated, the inhabitants of which trade not only with

with all Spain, but even with the Weſt Indies, are alſo beneficially employed in the fabrication of ſilks; *San Pol*, a modern town, which, under the fecundating protection of induſtry, is perceptibly increaſing; *Callela*, one of the prettieſt places on the coaſt where there are likewiſe manufactories of cotton, ſilk, and lace; *Pineda*, another town, where it is common to ſtop to dine; and, laſtly, Malgrat, after paſſing through which you leave this delightful road and the ſea-coaſt, for a wild country. You next again deſcend into a tolerably handſome hollow, in the centre of which is the ſolitary tavern called *La Gunota*, where, in 1793, I found the worſt accommodation on the road.

The ſucceeding day I again entered a mountainous country, divided beween woods and heath. At length, the town of Girone is diſcovered on the back of hills, whereon towards the eaſt ſome redoubts are conſtructed, and which, ſinking towards the weſt, form a very pictureſque amphitheatre. This chain of hills form a ſemicircle about Girone. When yet a league from the town, you would conceive it to be ſituated on an eminence, but you go through and leave it without being ſenſible of an aſcent. Its cathedral, a fine monument of Gothic architecture, is the only building on a high ſituation.

Girone is unequally divided in two by the *Ter*, which you croſs here over a bridge, but which is almoſt always fordable. This town, famous in the modern wars of Spain, exhibited in March 1793 no military preparations, which confirmed me in the idea, that I have never foregone that the Spaniſh miniſtry had not, as was then pretended, a long preconceived intention of breaking with the French republic. The regular force of the garriſon of Girone was very ſmall. In ſome places you could ſcarcely diſtinguiſh the traces of fortifications. The ditches and covered way, peaceably devoted to culture, beſpoke the ſecurity of the inhabitants, and eſpecially that of the governor *Don Ladiſlaus Habor*, an active and plain old man, who, when I preſented him my paſſport, the forerunner of a rupture, appeared far from ſuſpecting it ſo nigh. I felt no diſpoſition to conceive this a paltry ſtratagem of war, from my not finding throughout a journey of more than one hundred leagues, any of thoſe ſymptoms of activity which are uſual previous to a war, more than I had ſeen at Girone. Without diſpute, the court of Spain had cauſed troops and ammunition to file off towards the frontiers of France, particularly to Navarre and Biſcay; but if it had had any other deſign than that which it profeſſed even up to the end of December 1792; namely, to protect herſelf in caſe of invaſion, with which ſhe might reaſonably eſteem herſelf to be threatened, from our muſtering of forces together, and from various ſpeeches as well in the Convention, as in different popular aſſemblies. If it had had any intention of invading the Republic, would it not have collected a conſiderable force in Catalonia by the time when as I had proof on my arrival at Perpignan there were no more than five thouſand men in the whole department of the Eaſtern Pyrenees?

The dioceſe of Girone, is one of the beſt cultivated, and moſt flouriſhing diſtricts in Spain. The part which is near the ſea produces great abundance of wine, lemons, oranges and all deſcriptions of grain; its mountainous parts are covered with vines, corn, and olives; in its woody parts many cork trees are found, the bark of which forms a conſiderable branch of commerce; and few are the quarters within the diſtrict but what are remarkable for their produce and the induſtry of their inhabitants. The *Lampourdan*, which forms its northern part, which was occupied by our troops for a year, and in which I ſojourned two months in order to negotiate the peace, which ſhortly after was ſigned at Baſle, the Lampourdan is a vaſt plain, extremely fertile in every kind of grain and fruit.

A ſmall

A ſmall town belonging to the ſame dioceſe, ſituated near the ſource of the Fluvia, whoſe name (*Olot*) is ſcarcely known, well deſerves to be drawn from its obſcurity for the aſtoniſhing induſtry of its inhabitants; every one there has employment of ſome kind, and there is ſcarcely any work for which they are not calculated. It contains a hundred ſtocking looms, with manufactories of cloth, ratteens, ribbons, &c., dye-houſes, paper-mills, manufactories of ſoap, cords, &c.

Half a league beyond Girone, is another town of conſiderable buſtle. Two leagues further, after having travelled over a pleaſing country, and paſſing a ſtreamlet near a mill, and a little hamlet, you arrive at *Madrina*, the dirtieſt and deareſt inn upon the whole road. It is, however, charmingly grouped, with reſpect to the hill that overlooks it.

From Madrina to Figueras (or Figuieres), our laſt ſleeping place in Spain, the country is tolerably well covered, and with the exception of a few heaths is moſtly cultivated. Fields of wheat are ſeen, of lupin and flax, but olive trees and vines are in extraordinary abundance. Many ſmall rivers are paſſed where during great part of the year you find a gutter of water running in midſt of a large bed of pebbles; in this particular, almoſt all the rivers which run from the Pyrenees to the Mediterranean reſemble each other, as well in this part of Catalonia, as in the Rouſſillon. Of this deſcription is the *Fluvia*, which we forded two great leagues before we arrived at Figueras. Its banks at that period were as tranquil as in midſt of the moſt profound peace. Nothing announced that this ſmall river, which, after the capture of Figueras and Roſa, the bravery of our troops more than once excited them to paſs, but which was prevented by the wiſe combinations of our generals; nothing, I ſay, announced that its ſhores would ſoon become the theatre of the operations of the two armies. I beheld them again but with more intereſt when two years after I was diſpatched to Figueras, which, after our ſucceſſes in the Lampourdan, became the head quarters of our army of the Eaſtern Pyrenees.

When I was there in 1793, General Ricardos, who had been appointed commandant-general of Catalonia, was momentarily expected. Figueras, which is an open town, and which muſt not be confounded with its citadel, had then in garriſon no more than 1700 infantry, and 300 cavalry; nor did the whole neighbourhood contain more than 5000 infantry. Such was the diſpoſeable force of Spain in 1793 to effect the pretended invaſion of Rouſſillon!

At the citadel, ſituated ſcarcely a quarter of a league from the town on an eminence, workmen were employed on the fortifications. It already contained a conſiderable quantity of artillery, and all the ammunition and proviſions, deſtined, eighteen months afterwards, to fall into the hands of the French republic.

At the commencement of this war the Spaniards, by a concurrence of cauſes, from the catalogue of which I certainly do not mean to expunge their valour, made ſome progreſs on our territory. They had penetrated by the Col des Orts, weſt of Bellegarde, as far as St. Laurent de Cerda, a town in the gorges of the Pyrenees, peopled with ſmugglers, and perſons but little attached to the French republic, and thence had invaded the two diſtricts of Prades and Ceret, obliged the caſtle of Bellegarde to capitulate, threatened to fall on Perpignan, and turning ſhort towards the ſea, took poſſeſſion of Elne, Collioure, and the port of Vendres. Theſe triumphs were of no long duration, for the honour of the French arms was quickly avenged by General Dugommier, who drove the Spaniards from the Rouſſillon, retook Bellegarde, and penetrated into the Lampourdan. General Ricardos, to whoſe activity the ephemeral ſucceſſes of Spain are in a meaſure to be attributed, died about this period, and was ſucceeded by the

Count

Count de la Union, a young and brave general, but of no experience. The French army overcame every obſtacle he oppoſed to their march. Eighty-three redoubts! a ſort of fortreſs conſtructed in a hurry, but ſome of which were apparently impenetrable, placed on each ſide of the road for four leagues, which ſeparates Figueras from Janquiere, the laſt town in Catalonia. Eighty-three redoubts! I ſay, were carried with a rapidity, an intrepidity which cannot be too highly extolled. In a deciſive battle, in which the Count de la Union periſhed, the Spaniſh army was put to the rout, and the wreck thereof taking ſhelter in the *impregnable* citadel, carried terror and diſcouragement in their train. General Perignon, who at that time commanded our victorious army, advancing to within half a league of the place, imperiouſly ſummoned the governor to ſurrender; and two hours after the capitulation was ſigned, without either breach, aſſault, without the trenches being opened, or any work begun. When I was in its neighbourhood in 1783, I endeavoured in vain to penetrate through three hundred workmen, who repaired thither every morning to put the finiſhing hand to the work. They alone were allowed to paſs the gate which led to its interior, and I was only ſuffered to walk round its glacis, and the covered way of its exterior works. Two years afterwards I was rather better ſerved by circumſtances, and under the auſpices of conqueſt I examined this place at my eaſe, of which I had heard the Spaniards vaunt ſo much.

The fortreſs of Figueras was begun in the reign of Ferdinand VI. It was intended to be a maſter-piece in the art of fortification, and certainly is one of prodigality in that line. All military men who have ſeen it agree that no place in Europe is furniſhed in greater profuſion with the different means of defence. The beſiegers in particular were enabled to convince themſelves of this, for on their entrance they were untouched. Notwithſtanding their valour would make nothing incredible, they themſelves with difficulty conceived how it was poſſible in ſo ſhort a time to reduce a place which had a garriſon of nine thouſand men, whoſe walls external and internal were all of ſtone, more than a fathom in thickneſs; whoſe principal ditches were all deep, and more than a hundred feet wide; the approaches to which on the only ſide where trenches could be opened were mined, whoſe principal * cordon was not diſcernible from without; where every part was caſemated, ramparts, barracks, hoſpital, ſtables, cellars, and magazines.

Its means of ſubſiſtence were proportioned to its means of defence. Water is preſerved there in four large ciſterns, dug in the four corners of the place d'armes, and ſupplied by an aqueduct; and there was ſtore of proviſions of every deſcription in the greateſt abundance, barrels of flour, biſcuit, cheeſe, ſalt cod, oil, wines, brandy, &c. &c. Of the quantity of each let one ſingle article ſuffice for a criterion; ſuch an abundance of bacon covered the immenſe long floors of the corridors of the caſemates of Figueras, that from a calculation made in my preſence, valuing the pound at no more than four franks, the ſtock of it muſt have been worth 800,000 livres.

On examining this place as well within as without, the moſt ignorant man would aſk himſelf how it could be ſo eaſily taken. Some attributed its ready ſurrender to the terror with which the garriſon was ſeized by an imperious ſummons, following ſo cloſely at the heels of a deciſive battle. Others pretended that this garriſon, ſo well provided with bacon, cheeſe, and brandy, were deſtitute of flints and matches. While again ſome could no otherways explain this extraordinary ſucceſs than by imputing it to corruption, and affirmed that two large caſks of money were ſeen to be carried to the commander, as the price of his treaſon. Neither is it ſurpriſing if, through reſpect to the glory of

* The cordon, for which the tranſlator, knowing of no Engliſh word that correſponds, has conſequently adopted the French, means the ſummit of the parapet, which is rounded like a cord.

their nation, the Spaniards be moſt willing to give this interpretation to the matter, the moſt abſurd of any; as if at the period of our greateſt financial diſtreſs we had money to laviſh on Figueras, without poſſeſſing any for the purpoſe of ſecuring Luxembourg, Maeſtricht, Ehrenbreitſtein, Mentz, &c. &c., all of them places of far greater importance than this pretended bulwark of Catalonia, the ſurrender of which did not occaſion that province to be invaded; or as if Spaniſh commanders alone were corruptible. The moſt likely reaſon to be attributed for its haſty ſurrender, nay even the beſt authenticated is, that thoſe who were to preſide over the different operations of the defence of the place were taken by ſurprize, were deſtitute of foreſight and concord, and that for the garriſon under their command, it *was not their courageous day*. The old bye-word, *he was once upon a time a brave fellow*, comes from Spain. Surely the Spaniards will not take amiſs that it be for once applied to themſelves; for what nation is there of whom at one period or other the ſame may not have been ſaid?

The French army, after rendering itſelf maſter of Figueras, was ſpread about the neighbourhood from Junquiere to the banks of La Fluvia.

But in order to maintain peaceable poſſeſſion of the Lampourdan, and ſecure ſubſiſtence by means of the ſea, it was requiſite it ſhould have poſſeſſion of the port, the fortreſs of Roſas, and the little fort *de la Trinité*, called by us le Bouton.

This conqueſt, leſs eaſy and leſs ſudden than that of Figueras, was ſtill recent when I paid a viſit to this theatre of one of the brilliant exploits of the army of the Eaſtern Pyrenees. Roſas is four great leagues eaſt of Figueras. In order to reach it you paſs by *Villa Beltran* and *Peralada*, and travel over a very fine country almoſt wholly a plain. *Le Bouton* is diſcerned at a diſtance of almoſt three leagues. Situated on a ſlope of the Pyrenees, at the part where they decline in the ſea; it appears at this diſtance a caſtle in ruins. On approaching, you diſcover on very even ground the fort of Roſas, whoſe fortifications conſiſt in a double range of walls, without either a ditch, covered way, or glacis. It could have made but a very ſhort reſiſtance, had it not been for the aſſiſtance it received from the Spaniſh ſquadron at anchor in the vaſt bay, on the ſhore of which the fort, the village, and Bouton are ſituated, in a ſemicircular line along the bay. You paſs under the inner battery of the fort to get to the village, which is only a long row of houſes whitened over. Beyond the village one has to climb over rocks in order to arrive at Bouton. This little fort has a double object, that of defending the entrance of the bay, and protecting the little town of Roſas, which is diſtant from it ſomewhat more than a quarter of a league. On its ſummit is a light-houſe for directing ſhips. Notwithſtanding its compaſs was extremely ſmall, it poſſeſſed means of defence in its three platforms, ranged one above the other, againſt which the French had long to contend. In no part poſſibly of all the different ſcenes of this war, ſo fertile in wondrous events, in no part did the valour of our troops ſhine with greater luſtre than at this fort of Bouton. The artillery deſigned to batter it was raiſed by the main ſtrength of man up the declivity to the ſummit of the ſteep rocks which ſurround it; a poſition to which the moſt undaunted ſportſman would heſitate to purſue the game that ſhould take refuge, hither did they raiſe, from ſuch ſituations was heard the thunder of the French artillery; and ſhould the traces of its paſſage imprinted on the rock be recognized by poſterity, it will require the teſtimony of hiſtory to ſatisfy it as to its cauſe.

The fort of Bouton was not taken before a conſiderable breach had been effected; nor did it even then capitulate; for the garriſon had time to eſcape by rope-ladders to the beach, where the boats belonging to the ſquadron was waiting for them; ſo that upon the entry of the beſiegers they found nothing but the dead. Our army could not take poſſeſſion of Roſas until after this capture.

This port is never greatly frequented. It is however formed by an immenſe bay, in which even ſhips of the line may moor; but this bay is too ſpacious, and its entrance far too wide, to afford ſhelter either againſt winds, or attacks from the ſea ſide.

The country about it on the ſide towards the Pyrenees is very pictureſque, and appeared to me to deſerve a ſhort excurſion. In the firſt place then after leaving the fort, I climbed up the enormous mountains which ſeparate the bay of Roſas from that which is oppoſite to it on the north, and which you arrive at by ſea after making a long round, and doubling the cape of Creus. After travelling for two leagues over a moſt fatiguing road, I arrived at *La Selva alta*, a town buried in a baſon in the middle of rocks. Half a league beyond you meet with *Selva baxa*, a conſiderable town, placed in an amphitheatre on the bay of Selves or Selva. At both theſe places our troops were quartered. The ſecond has a little port, which has ſome trade. It is in this neighbourhood a ſweetiſh wine is made, of an agreeable flavour and colour, and which may be placed as a deſert wine on a level with Sherry and Frontignac. There is nothing but "*good luck and bad luck*" for the produce of the earth as well as mankind. Before our war with Spain this excellent wine of Selva, which has more than once chaced away care from head-quarters, was but little known out of the Lampourdan; but I truſt the epicures of our army of the Eaſtern Pyrenees will make it amends for the oblivion to which it ſeemed to be condemned.

The whole country, although of wild appearance, in ſpite of the preſence of our troops, bore the traces of as good tillage as the nature of the ſoil would allow.

In order to return from Selves to Figueras, you keep along the ſteep ſides of the bay. You afterwards deſcend into the charming baſon wherein the town of *Llanſa* is ſituated, at ſome diſtance from the little inlet of that name. As you travel through this hollow the hills which ſurround it, covered with vines, have a charming appearance; and after attaining a height on which an old caſtle is ſituated, you perceive the town of Peraladas, and at the extremity of the horizon the road which aſcends by windings to the fort of Figueras.

The view of the fine country of the Lampourdan, the limits of which I had attained after having travelled over its wildeſt but moſt pictureſque diviſion, awakened thoſe regrets which the philanthropiſt ever experiences, on reflection that every where the fineſt countries are moſt liable to the ravages of war, Flanders, the Palatinate, and Lombardy. Still, on the other hand, a man muſt poſſeſs a love of glory and dominion equal to that of Catherine II., who ſhould carry this ſcourge into deſerts and rocks, and amid the frozen lakes of Finland. Let me, however, do the juſtice to our army of the Eaſtern Pyrenees to ſay, that the inhabitants of the Lampourdan will not have had much to lament from their length of ſtay there. It did no other than ſuch damage as is inſeparable from military operations. In midſt of our cantonments the fields were in full cultivation. In the neighbourhood of Roſas the vines budded afreſh about the large holes which bore witneſs to the recent fall of bombs; and on the hills in the neighbourhood of Figueras, if thoſe be excepted which formed its glacis by the ſide of the high road, the ſpacious olive-grounds were ſcarcely any where damaged. Our ſoldiers encamped beneath the ſhade of the trees, made uſe of none but the barren trunks for their neceſſities. Philoſophy reconciles itſelf in meaſure to this terrible and eſſentially deſtructive art, where diſcipline prevents exceſs.

But let me be candid. In thoſe fits of rage the conſequence of reſiſtance to troops accuſtomed to conquer, in the intoxication of victory diſorders were committed in Catalonia, as well as in Biſcay, at which humanity ſhudders; and other exceſſes were tolerated which policy ſhould have prevented. At *Euguy*, at *Orbaiceta*, towards French Navarre,

Navarre, at *St. Laurent de la Muga*, ſome leagues north-weſt of Figueras, Spain poſſeſſed founderies of great value for their arſenals. Our armies treated them as if they were a Portſmouth or a Plymouth, not leaving one ſtone upon another.

In no part, however, of the peninſula was the religion of the country or its miniſters given up to perſecution. The paſtors indeed, and the greater part of their flock, took to flight at our approach. As has been the caſe in all wars where religion has been one of its cauſes, as well as in all thoſe wherein neceſſity has no law, the French army

"Of many a church a ſtable made."

Yet all the churches were left ſtanding after our invaſion; yet were not the objects of the veneration of the faithful either overthrown or mutilated; and during the time our head-quarters were at Figueras, I ſaw croſſes remaining erect in ſome of the principal ſtreets, even in the abſence of their adorers.

Theſe precautions, however, were not of ſufficient weight to bring over the Catalans to our cauſe. Fanaticiſm ſeemed to have a greater influence on them than the love of liberty. We reckoned too much upon the effect of this ſentiment. Among them it is principally made up of an averſion to the yoke of the Caſtilians, and a vague tendency towards an independent government. But for the extreme vigilance of the court, we certainly could have maintained a good underſtanding at Barcelona. It is in great cities that diſcontent is ever moſt readily excited, and the diſcontented moſt eaſily brought to the ſame mode of thinking. In theſe, greater bodies of people collected together, and with more inflammable minds, materially favour the propagation of extraordinary ideas. In theſe, the ſame as with a combuſtible matter; a ſpark is ſufficient to occaſion a conflagration. But the court perceived the danger at a diſtance; and the prieſts, much more faithful to their own intereſt than that of the court, eaſily contrived to counteract the plots of our miſſionaries. Theſe, at this epoch, diſcovered ſufficient cauſes of complaint againſt the government, and found at ſecret meetings a number of perſons ready to give ear to their revolutionary inſinuations. Had our ſucceſſes carried us to the gates of Barcelona, they might have been attended with vexatious conſequences to the King of Spain. Poſſibly it might have been eaſy to effect the independence of the Catalan republic, and realize a fine dream of former years; in attempting which we ſhould have found a number of well-wiſhers.

At the ſame time, a ſucceſſion of victories had brought us in the weſt to the gates of Bilboa, and in the ſouth to the banks of the Ebro. After paſſing this river, the rocks of Pancorvo were the only obſtacles which nature, aſſiſted by a little art, had to oppoſe to the march of our triumphant armies acroſs the two Caſtiles. Already the inhabitants of that of theſe two provinces which was the neareſt to us, were infected with panic, and emigrating in the utmoſt haſte and confuſion. But our generals at theſe two oppoſite points were not only brave, they poſſeſſed prudence as well as courage. They were ſenſible, and our government was of the ſame opinion, that we ſhould have gained nothing by devaſtating theſe Spaniſh provinces in one quarter; or by weakening and ſubjecting a power to the horrors of a civil war, with whom, after a year of hoſtility, we felt the neceſſity of a reconciliation in another. However, even more ſplendid victories would not have accelerated this re-union in a fuller degree than the arrogance of the Engliſh. Thus did our real enemies advance our intereſts ſtill more than our ſucceſsful arms; neither is this one of the ſmalleſt favours of fortune during the infancy of the French republic.

The Catalans and Caſtilians united in their affection for a religion which was repreſented to them as intereſted in the French revelution, againſt which Europe had combined, united as well in their attachment to a monarch known to them only by his titles to their eſteem, and to whom individually they never imputed the diſorders of which they conceived they had a right to complain: the Catalans and Caſtilians, I ſay, ſuſpended their animoſities to make a common cauſe againſt the common enemy. But ſhortly afterwards, being ſatisfied of their inability to cope with us, as they joined their efforts in war, ſo did they unite in their wiſhes for peace, as well as in their reſentment againſt the real enemy which had cauſed them to eſpouſe his hatred to us; and we had the pleaſure of reflecting that we had not made them expiate the tranſitory error of their government by any deep or laſting wounds on their proſperity. What would have been our regret if, on reconciliation taking place, we had left Spain a prey to the horrors of civil war, in dread of inſurrection, and under neceſſity of uſing vengeance; if we had thus rendered impoſſible any ſincere alliance; or at leaſt if this power, obliged to divide its attention and its means between ſubjects it might have to reſtrain, and allies it might have to aſſiſt, ſhould for a long time have been able to ſpare us nothing but barren wiſhes and reproaches.

But it is time to leave Catalonia, and put an end to my long career.

Italiam! Italiam!

From Figueras you perceive the Pyrenees very diſtinctly. But what do I ſay? You are at their feet, ſurrounded by a prolongation of their immenſe chain, for theſe hills are a ramification of the Pyrenees; ſome of them, although diſtantly, towering above the eminence on which Figueras is ſituated, and making a long circuit round this fortreſs, ſink into the ſea at Cape Palamos.

The Lampourdan, thus encloſed, is watered particularly on the north weſt to ſouth eaſt by a great number of ſmall rivers and rivulets. Such are the *Lobregat* which flows from the Pyrenees, and paſſes very nigh La Junquiere; *La Muga*, on the banks of which was the foundry which we deſtroyed; *El Manol*, along which were our principal cantonments, that is to ſay *Siſtella*, where was the extremity of our principal line. *Avinonet*, *Villafan*, and *Caſtillon*; *L'Alga* on the ſides of which were ſome others; *La Fluvia*, the boundary of our conqueſts, a river which is croſſed over the bridges *Beſalu*, and *Baſcara*, notwithſtanding it be moſtly fordable, and which after running very nearly to the ſea at the village of *San Pere Peſcador*, afterwards winds about to empty itſelf two ſhort leagues farther towards the ſouth, at the exremity of the bay of Roſas; and laſtly the *Ter*, which falls into the ſea, eight or ten leagues below Girone oppoſite to the ſmall iſlands *des Medes*.

Theſe rivers and rivulets, which for almoſt the whole year are fordable, are ſwollen in the ſpring by the thawing of the ſnows, and the rains which accompany the thaw. In April 1795 I was witneſs to one of theſe periodical floods. After three days of hard rain, all the ſmall rivers between the Fluvia and Figueras, and even the Fluvia itſelf, became impaſſable, and the communication of the infantry between head-quarters and ſome of our cantonments was nearly interrupted. Such events are common in a great part of Spain, and eſpecially in Catalonia; and during the famous campaign which we have previouſly noticed, one of theſe ſudden inundations of the Segu, the Cenna, and other conſiderable rivers, oppoſed obſtacles to the operations of Cæſar, which it required all his genius to ſurmount.

The road from Figueras to Junquiere was pleaſant to travel over, even before it had been ſtrewed with monuments of French bravery. You at firſt follow the courſe of the chain

chain of hills (for the moſt part productive) which lie in the neighbourhood of Figueras. As ſoon as the little village of *Pont des Molinos* is paſſed, you begin to ſee the continued file of eminences on which the Spaniards conſtructed thoſe redoubts, which would for a long time have ſtopped an army of leſs intrepidity than ours. Some of them are on the banks, but on the oppoſite ſide, of the Lobregat, which flows from the foot of the mountains of Bellegarde, and which is twice croſſed over handſome bridges. Shortly after leaving all theſe redoubts behind, and clearing a hill, the mountains appear before you, on one of which is Bellegarde; and at the foot of them the modeſt town of Junquiere, which looks as if liable to be annihilated in an inſtant by the fire from that threatening fortreſs.

La Junquiere, ſituated at the entrance of a valley, which enlarges by degrees towards Catalonia, poſſeſſes no other reſources than tillage and the cork-trees which cover the adjoining mountains. This town is perfectly open on that part which leads from Spain to France. In 1793 I found here no more than a detachment of two hundred men. In conſequence, its inhabitants, notwithſtanding they profeſſed the moſt lively attachment to the government of their King, bitterly complained of their ſtate of deſtitution, in ſuch a formidable neighbourhood as that of Bellegarde.

This fortreſs, however, has not near ſo impoſing an appearance from this ſpot as from different others upon the road, which, by many windings through the rocks, comes from the other ſide of the Pyrenees. This lofty ruler of the neighbouring vales is beheld with pleaſure mixed with awe, and loſt ſight of again at leaſt ten times as you trace the fatiguing maze.

It is full half a league from La Junquiere to the ſpot on which one is directly below Bellegarde; and along the whole diſtance the aſcent is ſcarcely perceptible. The firſt object you meet with upon the road is a ſmall lonely houſe, near which in 1793 two ſmall columns yet remained, which marked the limits of France and Spain. The one bore the arms of His Catholic Majeſty, the other that of the French republic and its emblems, freſh engraved. In 1795 I found theſe limits deſtroyed by victory. The columns were broken, and the road ſtrewed with the pieces. One would have imagined Catalonia irrevocably joined to the French republic.

A little beyond there is a ſmall village called *Perthus*, whereat one of the roads begins which leads to Bellegarde. Here during peace is the office for examining the paſſports of travellers. Here in 1793, in the month of March, did I meet with groups of our brave volunteers, who frequently came down from the fortreſs to learn the news of the day, and eſpecially to enquire if the ſignal for war with Spain would ſhortly be given; my return to France appeared to calm their impatience. It is from this town that the *Col de Perthus* takes its name, which leads from the Junquiere to Boulou, by windings which one is led to think are endleſs.

As far as Perthus the road is excellent, but from the ſpot where our territory begins the road in 1793 was exceedingly neglected. In 1795 it was in tolerable repair. From Junquiere to Boulou it winds among the gloom of the lofty Pyrenees, and occaſionally preſents views which are highly pictureſque. In this country, which one cannot travel through without pleaſure mixed with apprehenſion, nature is alternately cheerful, majeſtic, and terrible. As is the caſe in moſt mountainous countries, ſhe has diſplayed a great variety of poſitions, and appears to delight in uniting oppoſite climates. At times you leave the plains of Catalonia or Rouſſillon with nothing but ſerenity throughout the whole horizon; and ſhortly after you penetrate the varied abode of tempeſts. I myſelf experienced this during the month of March 1795, in one of my excurſions from Perpignan to Figueras. On leaving the Rouſſillon, the weather was perfectly mild; but

when

when I attained the ſummit of the Pyrenees, I was overtaken by a violent ſtorm. I trembled for ſome time by the light of continual electric flaſhes; and upon my arrival in the Lampourdan I found the earth covered with ſnow, which had fallen while I was paſſing the mountains. How trifling does man appear with all his ſchemes by the ſide of theſe grand accidents of nature! How paltry the moſt formidable armies compared with theſe ribs of the world! How ſmall do they appear amid deep and extenſive vales! What is the noiſe of terreſtrial artillery to that of thunder a hundred times reverberated from their different ſinuoſities! Generations of heroes paſs along and are no more; but the enormous maſs of the Canigou, perpetually clothed with froſt, remains ſtill the ſame, as durable as the world.

From Perthus it is ſomething more than a great league to Boulou, which is ſeen in the middle of a hollow ſurrounded by an amphitheatre of mountains, ſome of which are covered with ſnow even in the ſpring. Among them *Canigou* riſes on the left and pierces above the clouds. This is one of the moſt diſtinguiſhable points of the Pyrenees. In vain do you leave it behind, diſtance ſcarcely ſeems to diminiſh its maſs; and on reaching Perpignan you might ſtill think yourſelf at its foot.

Before you aſcend towards the village of Boulou, which is the firſt poſt town in France, you arrive at the banks of the Tech, a ſmall river which has its ſource in the Pyrenees, waſhes *Pratz de Mollo*, and the *Fort des Bains*, runs cloſe to the little town of Ceret, and empties itſelf into the ſea above Collioure. So late as 1793 you were obliged to ford it with much inconvenience. It was a diſguſting ſight to behold men with no other clothing than a ſhirt plunge into the water up to the waiſt, and puſh the carriages of travellers by main ſtrength before them to the oppoſite ſide. War which laid waſte its borders, has however cauſed a little wooden bridge to be built, which after facilitating for two years the paſſage of the armies and their train, ſerves now for communication of a more peaceable deſcription.

I finiſh with Boulou, which is only the diſtance of a muſquet ſhot from the Tech. I ſhall now take a farewell proſpect of the fine country which I have endeavoured to deſcribe, in order to preſent my reader with a recapitulation of my obſervations, my conjectures, and wiſhes.

RECAPITULATION.

I think I have proved that neither Spain nor Spaniards are deſerving of the diſdain with which they are treated by ignorance. On the contrary, what are they in want of that is deſirable? Does not Spain poſſeſs all the elements of proſperity? What a delightful climate! What numerous productions which induſtry more enlightened and better directed might eaſily bring to perfection; wines, fruit, wool, ſilk, oil, horſes, &c. What riches of every deſcription contained in the bowels of its ſoil! Of what would not its inhabitants be capable if the government did but ſecond the exuberance of nature!

But a fatal inſtinct ſeems to incline it to oppoſe its beneficence. Continually do we meet with wrong meaſures perpetuated by cuſtom and obſtinacy; or where new ones are propoſed by genius, when reſolution begins them, envy and prejudice are ever on the watch to ſtay them in their career. In no country poſſibly have calumny and intrigue exerted themſelves with greater ſucceſs to the injury of merit and talent. Let us endeavour to enumerate the diſtinguiſhed characters which in our time have been condemned, ſome to flagrant diſgrace, and others to a ſtate of nullity.

Shall we mention *Maritz* and *Gautier* *, employed one in re-eſtabliſhing the artillery, the other in ſhip-building, eſcaping from their perſecutors only by a miracle.

Olavidis † ſnatched from his flouriſhing colony, to be immured in the dungeons of the inquiſition.

A *Marquis d'Iranda* ‡, whoſe vaſt knowledge in affairs relative to adminiſtration, and eſpecially in what regards finance, have been conſtantly dreaded theſe thirty years back, yet are ſcarcely ever conſulted.

A *Count de Campomanes*, who at the end of his long career as a learned man and a magiſtrate, is left to the enjoyment of that, of which he could not be deprived, a well earned reputation.

A *Count d'Aranda* §, paying for the energy of his character, and the wiſdom of his councils, by being twice in diſgrace.

A *Cabarrus* ‖, whoſe talents and ſervices are remunerated by four years impriſonment.

A *Thomas Munoz*, whoſe ſucceſs in the immortal undertaking at Cadiz, rather excited envy than applauſe.

A *Mazareddo*, leſs known, leſs eſteemed in his own country than by two neighbouring nations who do juſtice to his eminent characters.

An *Auguſtin Betancourt* ¶, one of the moſt ſkilfull machiniſts in Europe, according to the learned in England, and France, who indeed is neither neglected nor forgotten; but for whom no employment could be found in Spain, where notwithſtanding all machinery employed in arts and trades is very imperfect, and who is therefore ſent to conſtruct roads and canals in Cuba.

A *Malaſpina*, and a father *Gil*, impriſoned at the inſtant they are about to publiſh a new voyage round the world.

A *Franciſco Saavedra*, who, after evidencing in the Spaniſh colonies an unuſual aptitude for government languiſhes almoſt unknown in one of thoſe honourable places reſerved as a reward for the long ſervices of mediocrity, or as a quietus for talent, the exerciſe of which is not deſired **.

* Both of them are dead; the one twenty years ago, the other in 1800: but the firſt left children in the Spaniſh ſervice who were to maintain their father's name.

† He is returned to his country, and lives peaceably in a ſmall town of Andaluſia, with a penſion of 90 thouſand rials. His return to Spain was preceded by a religious work entitled *el evangelio in triumfo*, compoſed during the latter part of his retirement in France, which has met ſo great a demand both in Spain and in the Indies that it has run through four editions.

‡ He died in 1801 at a very advanced age. He obtained towards the end of his uſeful life the vain honour of councillor of ſtate.

§ He died exiled at his eſtate in Arragon.

‖ After regaining ſome degree of credit, as we before noticed, he retired to private life four years ago. At firſt he took up his reſidence near Torrelaguna, fourteen leagues from Madrid, where he amuſed himſelf with agriculture. Lately he has been travelling about anew; and not long ago was at Paris.

¶ His expedition to Cuba was prevented by various circumſtances. On his return to Madrid, he fixed the attention of government by his calculations. He was employed in eſtabliſhing telegraphs, an object in which he was inſtructed by Mr. Brequet during his laſt ſtay at Paris. He has begun one which communicates between Buen Retiro and Aranjuez, and is to be continued to Cadiz. At preſent he is one of the directors general of the poſt office, and entruſted particularly with the department of highways and bridges. In this capacity, he has cauſed *one hundred and forty-one* bridges to be conſtructed or repaired recently on the two roads from Madrid to Barcelona, the one by Valencia, the other by Sarragoſſa to facilitate the expedition, which the King and Queen are about to make to Barcelona in the month of September 1803.

** He was in 1798 at the head of foreign affairs: but ſhortly after proviſionally ſucceeded by Mr. d'Urquijo, and definitively by the preſent miniſter Cevallos. From the illneſs which was the cauſe of his being diſplaced he was obliged to remain a year at the Eſcurial: he was afterwards permitted to retire to Puerto Real near Cadiz, where he at preſent reſides.

A *Ramon*

A *Ramon Pignatelli* *, a *Gaſpard Iovellanos* †, citizens full of learning and patriotiſm, confined to obſcurity, the one in Arragon, the other in the Aſturias, and who on the narrow theatre where they are placed by circumſtances, render ſervice to their country, and meet their only reward in the eſteem of their fellow citizens.

And ſo many other learned men, artiſts, men of talents in every known department, who are appreciated, yet ſuffered to languiſh inactive, and almoſt in want ‡; while at the ſame time penſions and places are found for loobies and intriguing characters. Funds are wanting for uſeful undertakings, while ſufficient yet are found to ſupply out a pomp which adds no real ſplendor to the throne, but which is capable of furniſhing dangerous matter for diſcontent to work upon.

And yet, ſpite of the incumbrances which clog this nation, ſpite of that injuſtice which is ſo diſcouraging, though prejudice calumniate it ſtill, how much has it not already effected towards withdrawing itſelf from the debaſing inertneſs to which it was condemned at the cloſe of the laſt century?

If inclined to judge of Spaniards with leſs ſeverity, compare the reign of Charles II. with that of Charles IV; ſee what in the one period was the ſtate of manufactures, commerce, the navy, and learning of every deſcription, and what in the other.

And how much more ſtriking would this difference have been, but for her frequent and uſeleſs wars, which have accumulated hindrances to that courſe of proſperity which it has been tracing for almoſt a century paſt; and but for the oppoſition ariſing out of momentary circumſtances to plans, which, in order to inſure ſucceſs, ſhould be permanent.

How lamentable to behold a nation, apparently grave and reaſonable, the ſlave of the paltry paſſions of thoſe around the throne, and that too in a greater degree than any other, than even our own nation. Did the Chancellor Bacon calumniate the one, and flatter the other, where three centuries ago, he ſaid; "The Spaniards appear to be wiſer than they are. The French are more ſo than they ſeem."

In fact, how much have the firſt been the victim of caprice. If we look to the period alone which has ſucceeded the extinction of the Auſtrian dynaſty; what was gained by the two wars of Phlip V., unleſs the barren honour of ſeeing his poſterity occupy two little ſovereignties in Italy? Ferdinand VI., of more pacific diſpoſition, ſanctioned with his name ſome brilliant attempts, but more fond of money than glory, he accumulates wealth, and allows ſeveral branches of adminiſtration to fall to decay. As Frenchmen we may reprove his partiality towards the Court of London. He deſerves rather more than pardon judged by a Spaniard, ſince it retarded the period of Spain taking part in the diſaſters of the war of 1756. Charles III. ſhews himſelf more generous in appearance; but it is on account of his being a Bourbon, and perſonally an enemy to England, that he joins our quarrel. This devotion to our cauſe coſts Spain a part of her navy and Florida. Spain is indemnified for the loſs of this by the ceſſion on our part of Louiſiana. But what did the Spaniſh nation gain by this? What

* He died at Sarragoſſa, to the laſt intent on the works of the canal of Arragon, without ever obtaining any other recompence than a cool teſtimonial of eſteem. This however was ſufficient for one of his bold and independent ſpirit.

† Enough has been ſaid of him in courſe of the work. Turned out of adminiſtration ſhortly after his introduction, he was at firſt baniſhed to the Aſturias. At preſent he is confined in a convent of Carmelites at Majorca.

‡ In this inſtance, however, we muſt do juſtice to the Spaniſh government, and allow that latterly, in many examples it has done juſtice to merit, even where diſtinguiſhed by public opinion alone: that it has brought into action, ſeveral eſtimable ſubjects who deſerve and have juſtified the confidence with which they have been entruſted; and if ſome faults, perhaps frivolous in themſelves, or but badly proved, have at intervals been puniſhed with ſignal diſgrace, yet have no ſervices been left without reward.

but coloniſts which its government eſtranges by the exerciſe of a horrid tyranny, and afterwards ſeeks to endear by ſacrifices? Seven years afterwards a quarrel on a point of honor threatens a rupture with England *. Freſh ruinous efforts to obtain ſatisfaction; freſh diſtraction of funds deſtined for uſeful undertakings. Our intervention diſperſes this ſtorm; but eight years ſcarcely elapſe, before Spain ſuffers herſelf in oppoſition to her intereſt to be dragged into the American war. Minorca and Florida recovered were the fruits of this war, impolitic at any rate, if not unjuſt; but the completion of the unfiniſhed canals of Caſtile and Arragon, ſo long in hand, would have been of much greater benefit to the nation, and would have been more cheaply purchaſed. Scarcely had ſhe enjoyed the bleſſings of peace for ſeven years entire, before ſhe was diſpoſed on account of ſome diſpute reſpecting furs from the extremity of America, to reſume anew the cruel diverſion of war, and put a ſtop to the moſt beneficial plans. But projects ſtill more inſenſate, ſolicit and obtain a preference. A vertigo which ſeized upon all the cabinets of Europe fixed its attention upon the French revolution. The court of Madrid placed itſelf at the head of thoſe powers who conſpired its overthrow. Of a ſudden, it changes both its miniſtry and its plan. It ſeems diſpoſed to remain a paſſive ſpectator of our hurricanes, and to keep in a defenſive attitude alone, when an event, more affecting to Spain than any other monarchy, cauſes her to join, although contrary to her intereſt, in the general reſentment. This error, which would ſtand acquitted before a tribunal of ſovereigns, is however but of momentary duration. The experience of eight-and-twenty months, is found ſufficient. It ſees the return of peace after making efforts, and meeting with diſaſters which render alike neceſſary repoſe and economy. You conceive it about to become wholly occupied with the payment of its debts, the amelioration of its finances, the conſtruction of roads, canals, &c. But no, it is more gratifying to her pride, to attempt to chaſtiſe the arrogance of her late momentary allies. Granted that its reſentment were juſt. As a Frenchman, I can but applaud the part it took, and wiſh it be juſtified by ſucceſs †. But this war, whatever may be its ſucceſs, will retard its advances to proſperity; but if it ſhould turn out unfortunate, Spain has ſo many poſſeſſions to loſe, ſo much loſt ground to regain! Peace is to her above all others a paramount duty, if it can be preſerved with ſafety, and without diſhonour; notwithſtanding which, it has in leſs than a century been expoſed eight times to the hazard of war, and for what, unleſs to gratify the quarrelſome diſpoſition of its cabinet, and the paltry paſſions of thoſe by whom it is governed.

It is not by ſuch conduct that a power, formerly of the firſt rank, can hope to become regenerate or reſume its ancient ſtate. Every century in a monarchical ſtate will produce at leaſt two weak ſovereigns, ſome ambitious queens, ſuch as Iſabella Farneſe, and ſome reſtleſs miniſters, ſuch as Alberoni, and Florida Blanca. In every century more than one occurrence will take place of equal importance with the affairs of the Falkland Iſlands, and Nootka Sound. An empire, the fate of which depends on ſimilar rulers, may make a noiſe in the gazettes of the day, it can but excite the regret of poſterity. An infant ſtate may gain ſtrength from being expoſed to ſtorms; arrived

* The queſtion reſpecting which this quarrel originated was, whether or not Spain had fair pretenſions to dominion over the whole of the North Weſt coaſt of America. It diſputed a claim on the part of England to form eſtabliſhments at *Nootka Sound*, between the 49° and 50° of Northern latitude. It was decided by a compoſition, by which the Engliſh were allowed to eſtabliſh themſelves between *Cape Mendacino* in the 40° of latitude and Nootka Sound.

† This wiſh has not been attended with the deſired completion. In the war now terminated, the Spaniards have certainly diſplayed much bravery and talent. It has given them new claims to our eſteem and gratitude, but has been of no advantage.

at maturity, and in a healthy condition, it may be able to withſtand them; they are inclemencies dangerous to the convaleſcent.

Of this Spain exhibits a proof. Its inhabitants are endowed with a happy and fruitful imagination, and poſſeſs great aptitude for the arts; they have founded eſtabliſhments of almoſt every deſcription; ſtreams of wealth run at their feet beneath a tranſparent ſurface. Good ſenſe is met with among them, even in the moſt obſcure claſſes; and of late years intelligence, even in the higheſt ranks; but with ſo much verſatility, ſo many plans conceived by one paſſion, and fruſtrated by another; can we wonder at its ſtationary poſition? Theſe, much too frequent, repetitions of uſeleſs war, and peace rather of a ſhewy than permanent nature, theſe ſhort intervals of wiſdom ſucceeded by long fits of extravagance, theſe render the work of her regeneration as arduous as Penelope's web.

In order to conſummate the plans for her poſterity already begun, more ſteadineſs is requiſite, a firmer reſolution, ſupported by greater activity, with leſs attachment to diſtant enterprizes. It is fit that the miniſtry ſhould direct its attention rather to the foundation of ſchools at home, than to the Philippine company; rather to the vivification of Caſtile, than the iſland of Trinidad *.

The preſent appears to be the moſt favourable epoch Spain has experienced for a long time. With a miniſter of unreſiſted ſway, in the flower of his age, who ſeems to be ſeriouſly intent on the public weal; a monarch whoſe purity of life and robuſt conſtitution forebode a long reign; fine plans ſketched out, and genius for the conception of others; hands which require nothing but practice and encouragement to render them expert; a people haughty it is true, but unleſs inſulted, tractable and affectionate; a people the government of which is organized in ſuch manner, its temporal and ſpiritual agents ſo diſtributed, and its population ſo much diſperſed, that twenty methods exiſt of watching over and reſtraining the diſaffected, while they poſſeſs not a ſingle rallying point to make them formidable, and are themſelves of a temper to be eaſily appeaſed by a ſhew of kindneſs, the moſt certain of all means of baniſhing diſcontent. With theſe, what a fund of means for doing good, with all the confidence inſpired by undiſputed authority, with all the deliberation of wiſdom!

> As owners, ruling every thing with thought,
> Fearleſs of being diſplaced, and hurrying nought.

And for triumphing over obſtacles, which men and circumſtances occaſionally oppoſe to the moſt uſeful undertakings!

To avail itſelf of theſe favorable circumſtances, let Spain diſmiſs that covetous ambition which miſtakes glory for proſperity; and which, if I may adopt an adage in the modern law of nations, fancies limits fixed to ſtates by nature; as if any uſurpation by ſuch a grant might not be made legitimate.

Let it learn from its own experience, that power is not the conſequence of large poſſeſſions, when, as is its caſe, a vaſt territory at home, ſufficiently capable of every ſpecies of improvement and proſperity, is continually invoking additional culture, induſtry and population.

To give an example, what might be expected to be the reſult of the conqueſts of Portugal to Spain, a project to which the preſent government is ſuppoſed ſurely without any reaſon, to be ſtrongly attached? Can it be blind to the exiſtence of thoſe prejudices in the two nations, which an union muſt tend to encreaſe? Hopeleſs of ever endearing

* Ceded to the Engliſh by the peace of Amiens.

to itſelf the conquered country, it would be obliged to watch over and reſtrain its emotions by extraordinary meaſures; which would divide the attention of its government, encreaſe its expences, and expoſe it continually to ſtorms. An invaſion of this deſcription, which no ſpurious pretext can juſtify, which would be a ſource of and plea for inſurrection, would render Spain obnoxious in the eyes of all impartial Europe: it would ſerve as a warning to a great part of it, to combine againſt two powers, the renewal of whoſe alliance ſhould be the ſignal for the moſt ambitious undertakings; it would awaken in all its force, the ſworn hatred againſt the two principal branches of the houſe of Bourbon would ſhortly create them new enemies, and diſturb the repoſe of years, of which both countries have need for their mutual regeneration.

Yet granted the incorporation ſhould be peaceably effected, conſolidated without internal tumult or external wars, in ſuch caſe the danger would certainly be leſs imminent to Spain, but not leſs formidable. Her European ſtates remain thus limited by pretended natural boundaries by the Pyrenees, the ocean and the Mediterranean. Irrevocably the ally of France, which ſhe appears to view as her permanent intereſt, ſhe has no invaſion by land to apprehend, and is ſecure in her diſtance from the maritime ſtates, from any diſembarkation on her ſhores. In this poſition ſhe may give herſelf up to the arts of peace. Theſe are indiſputably all that are requiſite for the happineſs of individuals, and proſperity of empires, but this art of war, however fatal, is likewiſe neceſſary. It conſolidates power, without which proſperity becomes precarious, and is loſt in the quiet of a peace of long duration. When ſurrounded by allies alone, when exempt for a long time from all alarm of war, a ſtate becomes effeminate, and an eaſy prey to an uſurper, or a conqueror; or ſhould it eſcape theſe dangers, it ſinks beneath the burthen even of its own proſperity.

Let not thoſe, therefore, who wiſh to aſſure a durable proſperity to Spain, ſeek it in this rounding of territory, which is gratifying to women and children alone. It is undoubtedly in want of allies; but it requires alſo jealous and rival neighbours to keep its activity on the alert, not to ſuffer it to neglect its means of defence, or even of attack, which the paſſions of men will conſtantly render neceſſary. It requires long intervals of peace but until the fine dream of the Abbè de St. Pierre be realized, it is alſo requiſite that its vigilance ſhould never ſleep, and that its courage, one of the diſtinctive characteriſtics of a Spaniard, ſhould not become paralyzed by the abſence of danger.

Perhaps one ought further to wiſh that their government, renouncing old prejudices and falſe ideas of grandeur, ſhould fearleſsly contemplate the proſpect of the inevitable future independence of the greater part of its colonies; that preparing itſelf beforehand for this ſeparation, it might prevent its being attended with bloodſhed; that inſtead of treating her coloniſts as grown-up children, under the yoke of a ſtep mother, ſhe ſhould freely emancipate her children, who thus might preſerve a laſting affection for their mother, and become her moſt intimate allies; that ſhe ſhould become convinced that this pacific revolution, gently brought about by wiſdom, would be facilitated by the conformity of manners, language and religion; that ſhe might profit by the example of England, whoſe tyranny towards its old coloniſts retarded this approximation, but which for years back has witneſſed, as a conſequence of the nature of things, the natural predilection of one nation in favour of another, with which it had been long connected, and with which it preſerves ſo many correſpondent uſages; that this government might learn alſo from the example of the ſame Engliſh, of the Dutch, and of the French that it is neither the number nor the extent of colonies, but their mode of organization and the excellence of their laws which tend to enrich the metropolis; for the French part of St. Domingo alone, in 1788, was more productive to

France than the iſland of Cuba, Mexico, and Peru together were to the Spaniards. ——I pauſe. I call to mind the antiquated prejudices retained in the archives of the council of the Indies, heir looms devolving to each miniſter of the day, from the period of the conqueſt of America. I feel how abortive all ſuch hopes muſt be; but woe to Spain if they be long deferred.

At leaſt I conjure you, Spaniards of the preſent day, renounce theſe ſchemes of aggrandizement with which you are charged. Has not your government, have ye not yourſelves a thouſand other modes of encreaſing your proſperity, employing your zeal, your riches, your talents, and your courage?

Your zeal, which eſpecially within theſe twenty years is directed to objects worthy of you. It was the parent of thoſe patriotic ſocieties, the opening of which was of ſuch auſpicious promiſe, but which, with ſome few exceptions, have brought forth nothing but plans and good wiſhes; but which at the ſame time aſk for encouragement alone to become far more productive. For notwithſtanding your government be deſpotic, you truly poſſeſs the *amor patriæ*; and notwithſtanding the efforts that are uſed to keep you in the dark, this attachment to your country has promoted intelligence.

Your riches, which lay idle in your money cheſts, or are placed in banks which receive it at a moderate intereſt, and employ it for their individual advantage; why do you not dedicate them, not to pious foundations already ſo numerous, and which ſeem rather intended to encourage indolence than ſolace diſtreſs, but rather to eſtabliſhments which might be ſerviceable to your country, beneficial to yourſelves, and ſpread life and plenty from one boundary of the empire to the other? Imitate in this inſtance at leaſt thoſe haughty rivals, who never ought to have been your allies. Contemplate the amazing works of this deſcription which public ſpirit has generated in England, its numerous canals projected and begun, not at immenſe expence by kings, miniſters, or intendants, but by individuals who enliven whole diſtricts for their own particular profit. In ſome of your provinces, you already have canals of irrigation which might ſerve for models. Encreaſe the number of them. Your country, however parched it appear, poſſeſſes more reſources of this kind than meet the eye of the rapid traveller It is deſtitute of ſhade; ſecond the views of government by a multiplication of plantations. Thus will ye ſhelter your cattle, your meadows, and yourſelf from the fury of a burning ſun. Invite and penſion artiſts who may furniſh you with machinery to leſſen labour and ſave time. Without waiting for the interpoſition of government, repair the roads of your different neighbourhoods, cultivate breeds of horſes, and artificial meads. This luxury will ye find more gratifying far than your rich gala dreſſes, your numerous penſioned ſatellites, and your various trains of carriages.

Your talents are evidenced in every department. In printing you excel. Your manufactories of cloth, particularly thoſe of Guadalaxara, and Segovia, come nigh to perfection. For twenty years back have your ſilk works made ſuch progreſs as to excite alarm among your rivals. In your roads, in Biſcay, Navarre, that of La Sierra Morena, and thoſe of the neighbourhood of your capital, in your baſon at Carthagena, in the dam oppoſed to the waves before Cadiz, in many of your modern bridges, in ſeveral of your veſſels of war, you have exhibited maſter-pieces of induſtry. Civil architecture has produced buildings in the capital, at the different royal reſidences, and in ſeveral great towns, remarkable for the excellence of their plans, and for the ſymmetry of their proportions. You have ſeveral engravers who deſerve to be noticed, and who only want to be better known, and more encouraged. Some of your painters revive the glory of your ſchool, too little known among foreigners, and which, though late, your government at length means to hold out to the admiration of Europe with the

aſſiſtance of the engraver *. Other arts leſs brilliant but more uſeful are cultivated among you with ſucceſs. You have brought to perfection the manufacture of iron. You make advances in refining copper. Your works in gold and ſilver begin to aſſume ſomewhat of elegance. Few coins are better ſtruck than yours in Europe. Shortly your government will no longer be under the neceſſity of leaving to foreigners of genius, and foreign mechanics, the care of conceiving and executing ſchemes for your own advantage. Too long has genius been with you an article of importation, it has at length become an indigenous production. It is now the duty of your government to ſeek it out, and turn it to profit.

And laſtly, *your courage* has indiſputably ſufficient means of exerciſe in time of peace; for much of it is wanting to attack thoſe abuſes which account for and procraſtinate your ſtate of langour. It is wanting to diminiſh the multitude of prieſts and monks who are a ſcandal to, and devour you, doing no leſs an injury to religion than to agriculture. It is wanting to effect the partitioning of thoſe properties, the vaſtneſs of which explains the imperfect cultivation and unpeopled condition of the two Caſtiles and Andaluſia. It is wanting to ſtop in their deſtructive career thoſe *Majorats*, an inſtitution of pride, ſo oppoſite to the feelings of nature, which unites in a firſt born male and his race every advantage of fortune, and thus paralyzes a multitude of eſtates. It is wanting to diveſt the *Meſta* of its ruinous privileges, and to reſtore to proprietors the excluſive enjoyment of their fields and paſtures. And eſpecially is it wanted to cure the people of its ſuperſtitious practices, and overturn thoſe altars on which they ſacrifice with trembling; to deliver it from the tribunal which it dreads as much as it reveres, and which is uſeleſs even to deſpotiſm, when it combined wiſdom with energy.

And as to theſe different kinds of courage, in poſſeſſion of which Spain would ſhortly become regenerate, it is among the governors alone that they have been wanting hitherto; many among the governed poſſeſs them fully. How many miniſters have there not been in the laſt century, animated with that daring ſpirit which actuates man to great actions.

Here an *Alberoni* giving a ſhock to the Spaniſh nation, violent it is true, and ill timed, which however tends to awaken her for ſome years from her lethargy.

There a *Macanas*, who dared to oppoſe the abuſes of the Inquiſition, and who afterwards became its apologiſt.

A *Campillo*, facing the clamours of the farmers general, thoſe cormorants of the revenue, and putting the collection of the revenues of the crown into commiſſion.

An *Enſenada*, conceiving many bold and uſeful plans, ſeeking and finding able coadjutors.

A *Galvez*, trampling on antiquated prejudices which reſtricted the commerce of Spaniſh America to a ſingle port.

An *Olavidé*, attacking vigorouſly the moſt ſacred abuſes; creating, organizing, and ſpreading life through a vaſt colony, and metamorphoſing foreſts and deſerts into a chearful neighbourhood.

A *Carraſco*, braving the hatred of great proprietors for the purpoſe of deſpoiling them of their uſurpations.

* For ſome years back, the court of Madrid has projected, however tardily, the production to the world of the celebrated works of which it is miſtreſs by the means of the engraver, and notwithſtanding the war, it appears that the plan is continued, artiſts being employed for the purpoſe, as well natives of the country, as thoſe of France and Germany.

A *Count*

A *Count d'Aranda* calling philoſophy about the throne, the application of which, tempered by wiſdom, would encreaſe the proſperity of the ſubject without weakening the power of the King.

A *Cabarrus*, endeavouring in ſpite of cuſtom and envy to eſtabliſh beneficial innovations that unfolded reſources, of which the Spaniſh nation had ſcarcely a conception.

A *Roda*, a *Campomanes*, a *Florida Blanca*, even attempting with the ſame ſucceſs to to reſtrict within due bounds the authority of the church, diſtinguiſhing properly between a reſpect for religion, and a ſtupid veneration for its miniſters.

Theſe, and twenty other examples, prove that particularly in this laſt century, as ſoon as government has manifeſted a diſpoſition to patronize uſeful enterprizes, it has found intrepid agents ready to promote its views. Let it therefore but be bold, its ſubjects will not be found deficient.

Deſpotic governments poſſeſs this advantage every where; a ſingle demonſtration of their will firmly made, and reſolutely adhered to, may effect wonders, even among nations of ſmall intelligence, and without animation. Of what then might not that of Spain be capable with a populace fecund in men of brilliant genius and ſtrong character; with a nation which, properly reſtored to its natural energy, would only require to be directed and reſtrained.

What a charming taſk, young miniſter, has fate allotted you, you whom I ſaw at your firſt appearance! The courſe is before you. The ſovereign's favor levels every obſtruction before you; it may conduct you to a fame of greater durability, and much more worthy your ambition. At your age you may conceive extenſive plans, and truſt to conſummate them. If ſo diſpoſed, you may at once refute the calumniators of your country, cauſe it to reſume its rank in Europe, and eſtabliſh for yourſelf a moſt diſtinguiſhed one in hiſtory.

Already do you fill ſome of its pages which you ought not to wiſh to ſee torn. You have been at the head of affairs during a war which was much leſs diſaſtrous to Spain than what it might have been; and at the eſtabliſhment of a peace, in which the ſacrifices on your part have borne no compariſon to the misfortunes experienced. Without denying the part which ſkill certainly had in a matter which aſtoniſhed all Europe, one yet may believe that the influence of the fortunate ſtar, under which you were born, has extended to your miniſterial operations. The name you have adopted in conſequence of theſe great events, ſeems to hold out an abridgement of what you conceive your duty. But if for an inſtant I could forget I was a Frenchman, I ſhould charge you with having already forſaken it, by engaging your country in a new quarrel, the leaſt injurious conſequence of which will be that of retarding the return of complete proſperity; of that proſperity, all the ſources of which are in your cuſtody, and which if facts, and a crowd of other teſtimony may be credited, is the moſt earneſt wiſh of your heart. For we well know that politics and military affairs engroſs not all your time, that you are deſirous of promoting arts and induſtry, and that far from fearing genius you take pleaſure in raiſing thoſe whom modeſty and want of encouragement have placed in obſcurity; that you enable intelligent perſons to travel abroad in order to obtain inſtruction on taſte which is wanting in your various eſtabliſhments, for convenience and luxury, and to ſtudy by nice inſpection thoſe models which national pride need not bluſh to copy.

We learn more recently that, ſeconded by eminent perſons whoſe confidence you enjoy, you have reſolution enough to make head againſt a tribunal, once formidable to ſovereigns themſelves, and that in the conteſt, the temporal power has proved victorious.

Theſe

Theſe wiſe meaſures, theſe vigorous acts are of good augury. You appear to be ſenſible that it were vain to attempt the regeneration of a country while ſubject to fanaticiſm. Your country has lately thirſted for information, and now it will be fruitleſs to oppoſe the inclination. The waters, whoſe courſe a dam would ſtop, or overflow, or break away the mound, their tranquil courſe might fertilize and irrigate the adjacent country, which their violent irruption would lay waſte. So is it with knowledge, if it ſtill had to contend with inſtitutions which might reſtrain its progreſs, it would diſturb the tranquillity of the country, and might even ſhake the throne. It is by foſtering it, that power will preſerve itſelf from the inconveniences it elſe might experience. I would willingly compare it to thoſe French revolutioniſts, whom kings have thought it right to perſecute in order to prevent the extenſion of their alarming maxims. Thoſe French who, before the rupture were watched with vexatious ſeverity, were then by their ſecret conſpiracies much more to be dreaded than they are now, that peace is eſtabliſhed between the two nations, and frankneſs preſides in the different relations between the two governments. So is it with knowledge. If you wiſh to render it dangerous, repulſe it, treat it as an enemy. If you would render it beneficial to the people, uninjurious to majeſty, treat it as an ally.

This truth is not foreign to every court. Yours is worthy of hearing it. Your conciliating diſpoſition, your good ſenſe will make light the taſk of enſuring its adoption. Perhaps it would be the moſt ſecure method of ſecuring your country againſt that revolutionary ſpirit with which it is ſaid to be threatened. Europe, which has its eyes upon you, muſt have to ſay thus of you.

By the mildneſs of his adminiſtration he managed ſo as to render deſpotiſm tolerable. He liſtened to the advice of that philoſophy which does not ſtand diſcredited with him, becauſe of the errors of ſome of its followers. He wiſhes the church to continue the ſupport of the throne, but not to rival its power. He allows it ſhould remain the protector of orthodoxy, but interdicts its perſecution.

Firm and faithful to the ties which nature and experience preſcribe to his country, he thinks it ought to have perpetual allies, but only tranſitory enemies. War in his eſtimation is ſometimes inevitable, but he does not conſider it a neceſſary element in the ſtructure of his reputation. He conſiders that it is under the ſhade of peace alone that thoſe arts can proſper which he loves, that induſtry which he encourages, and moſt eſpecially agriculture, which for ſo great a length of time has required thoſe gentle and wiſely calculated reforms, which war muſt make impoſſible.

Your flatterers perhaps will tell you that this is your portrait. Your friends, that I have caſt your horoſcope, founded indeed upon preſumption, but which it is requiſite you ſhould juſtify in order to deſerve the gratitude of your country, and the eulogy of poſterity.

TRAVELS IN SWITZERLAND,

AND IN

THE COUNTRY OF THE GRISONS:

IN A SERIES OF LETTERS

To *WILLIAM MELMOTH*, Esq.

FROM *WILLIAM COXE*, M.A. F.R.S. F.A.S.

RECTOR OF BEMERTON *.

TO THE COUNTESS OF PEMBROKE AND MONTGOMERY.

MADAM,

THESE Letters, relating to Switzerland, naturally claim your Ladyſhip's protection; for they were originally written while I had the honour of accompanying Lord Herbert on his travels. I feel myſelf highly flattered, therefore, in having the permiſſion of inſcribing them to your Ladyſhip, and of thus publicly acknowledging that I am, with great reſpect, and gratitude for obligations received from the Earl of Pembroke and your Ladyſhip,

MADAM,

Your Ladyſhip's moſt obedient and obliged humble ſervant,

Vienna, June 26, 1778. WM. COXE.

PREFACE TO THE EDITION OF 1789.

TEN years have elapſed ſince I gave to the Public a volume of Letters, under the title of "*Sketches on the Natural, Civil, and Political State of Switzerland.*" The favourable reception of that work induced me, in 1779, to make a journey through the country of the Griſons, a part of Switzerland hitherto little known. Having, in 1785 and 1787, opportunities of reviſiting the ſame ſpots which I had before deſcribed, I was anxious to reviſe and augment my former publication. With this view I compared my deſcriptions at the very places which I attempted to delineate; attentively peruſed the criticiſms of ſucceeding travellers; and in many of the principal towns I entreated ſeveral perſons, of political or literary eminence, to correct any errors, or to ſuggeſt any improvement, with reſpect to thoſe particular parts, with which, from ſituation, they were moſt converſant.

The materials collected from theſe and other ſources, increaſed by my own obſervations and reſearches, encourage me to hope, that the preſent improved account of ſo intereſting a country as Switzerland, will not be unacceptable to the public, and may be conſidered as a new work.

Bemerton, Feb. 20, 1789.

* London, 1801, 3 vols. 8vo. 4th edition.

LET-

LETTERS, &c.

LETTER I.—*Route through the Black Foreſt.—Source of the Danube.*

DEAR SIR, *Doneſchingen, July* 21, 1776.

I AM now at Doneſchingen, in my way towards Switzerland, a country long celebrated for the peculiarities of its different governments, and the ſingular beauties conferred upon it by nature. If it will not be treſpaſſing upon your patience, I propoſe to trouble you with ſome account of my tour, for I am perſuaded that I ſhall travel with much greater profit to myſelf; as the reflection that my obſervations are to be communicated to you, will render me more attentive and accurate in forming them.

We quitted Straſburgh yeſterday, and croſſed the Rhine to Kehl, formerly an important fortreſs belonging to Straſburgh when an imperial city. It was alſo ſtrongly fortified by the French, who took poſſeſſion of it in 1648: being ceded to the empire at the peace of Ryſwic, the Emperor conſigned it to the houſe of Baden, reſerving to himſelf the right of a garriſon. Since that period it has been twice attacked by the French, and as during the laſt ſiege, in 1733, the works were conſiderably damaged, the imperial garriſon has been withdrawn. At preſent there are only the ruins of the ancient fortifications; and by way of garriſon, a few invalids belonging to the Margrave of Baden. From Kehl we proceeded to Offenburgh, a ſmall imperial town, and ſoon after entered the beautiful valley of Kinſing: we paſſed through Gengenbach, another ſmall imperial town, finely ſituated, and continued our journey by the ſide of the ſmall river Kinſing; riſing gradually for ſeveral leagues together, until we found ourſelves in the midſt of the Black Foreſt. The country, as we aſcended, became more wild and romantic, and the river more rapid; on each hand mountains, whoſe acclivities were finely cultivated, and whoſe tops were richly covered with a continual foreſt. Several ſmall ſtreams of the cleareſt water rolled down the ſides of the mountain in numberleſs caſcades, and uniting fell into the Kinſing. The views were ſo exceedingly diverſified, the villages ſo delightfully ſituated, and the cottages ſo exceedingly pictureſque, that we almoſt ſeemed to have anticipated the romantic beauties of Switzerland.

Doneſchingen is the principal reſidence of the Prince of Furſtenberg, in the court-yard of whoſe palace the Danube takes its riſe. I am this moment returned from viſiting the ſpot, the deſcription of which may be compriſed in a few words. Some ſmall ſprings bubbling from the ground form a baſon of clear water, of about thirty feet ſquare; from this baſon iſſues the Danube, which is here only a little brook. And though the two ſmall rivers of Bribach and Brege, uniting below the town, are far more conſiderable than this ſtream, which flows into them ſoon after their junction; yet the latter alone has the honour of being called the ſource of the Danube. Having gone through the ceremony of ſtriding acroſs the ſtream, in order to ſay that we had *ſtepped* over the Danube, we ſoon ſatisfied our curioſity; the object in itſelf being by no means extraordinary; but deriving its ſole conſideration from being the ſource of ſo noble a river. Indeed it was this circumſtance alone that induced us to enter Switzerland by the way of Suabia.

I am, dear Sir, very affectionately yours,

WILLIAM COXE.

LETTER II.—*Arrival in Switzerland.—Schaffhauſen.—Fall of the Rhine.*

Schaffhauſen, July 22.

I FEEL great delight in breathing the air of liberty: every perſon here has apparently the mien of content and ſatisfaction. The cleanlineſs of the houſes, and of the people, is peculiarly ſtriking; and I can trace in all their manners, behaviour, and dreſs, ſome ſtrong outlines which diſtinguiſh this happy people from the neighbouring nations. Perhaps it may be prejudice and unreaſonable partiality; but I am the more pleaſed, becauſe their firſt appearance reminds me of my own countrymen, and I could almoſt think for a moment that I was in England.

Schaffhauſen, a tolerably well-built town, ſituated upon the northern ſhore of the Rhine, is the capital of the canton, and owes its origin to the interruption of the navigation of that river by the cataract at Lauffen: huts being at firſt conſtructed for the convenience of unloading the merchandize from the boats, by degrees increaſed to a large town. Schaffhauſen was formerly an imperial city, and governed by an ariſtocracy; but it was mortgaged in 1330, by the Emperor Louis of Bavaria, to the Dukes of Auſtria, and was releaſed from its dependency by the Emperor Sigiſmond when Frederick Duke of Auſtria was put under the ban of the empire. In 1501 it was admitted a member of the Helvetic confederacy; and is the twelfth canton in rank. Of all the cantons it is the leaſt in ſize, being only five leagues in length, and three in breadth: its population is ſuppoſed to amount to thirty thouſand ſouls, of which the capital contains about ſix thouſand.

The whole number of citizens or burgeſſes (in whom the ſupreme power ultimately reſides) is about ſixteen hundred. They are divided into twelve tribes; and from theſe are elected eighty-five members, who form the great and little council. To theſe two councils combined, the adminiſtration of affairs is committed: the ſenate, or little council of twenty-five, being entruſted with the executive power; and the great council, compriſing the ſenate, finally deciding all appeals, and regulating the more important concerns of government.

The revenues of the ſtate are very inconſiderable, as will appear from the ſalary of the burgomaſter, or chief of the republic; which barely amounts to 150l. *per ann.* The reformation was introduced in 1529: the clergy are paid by the ſtate, but their income is ſcarcely ſufficient for their maintenance; the beſt living being only about 100l., and the worſt 40l. *per ann.* The profeſſors of literature alſo, who are taken from the clergy, are paid by government; and a ſchool is ſupported at the public expence. Sumptuary laws are in force here, as well as in moſt parts of Switzerland; and no dancing is allowed, except upon particular occaſions. The principal article of exportation is wine, of which a large quantity is made, the country abounding in vineyards: and as the canton furniſhes but little corn, it is procured from Suabia in exchange for wine. In the town there are a few manufactures of linen, cotton, and ſilk.

It will perhaps give you ſome idea of the ſecurity of the Swiſs republics, when I inform you that Schaffhauſen, although a frontier town, has no garriſon, and that the fortifications are but weak. The citizens mount guard by turns; and the people of the canton being divided into regular companies of militia, which are exerciſed yearly, are always prepared to act in defence of their country. This canton has ſome troops in France, Sardinia, and Holland; the only foreign ſervices into which the ſubjects of the Proteſtant cantons enliſt.

Before

Before I take leave of this town, I muſt not omit mentioning the bridge over the Rhine, juſtly admired for the ſingularity of its architecture. The river is extremely rapid, and had already deſtroyed ſeveral ſtone bridges of the ſtrongeſt conſtruction; when a carpenter of Appenzel offered to throw a wooden bridge, of a ſingle arch, acroſs the river, which is near four hundred feet wide. The magiſtrates, however, required that it ſhould conſiſt of two arches, and that he ſhould for that purpoſe retain the middle pier of the old bridge. The architect was obliged to obey; but he has contrived to leave it a matter of doubt, whether the bridge derives any ſupport from the middle pier; and whether it would not have been equally ſafe if formed ſolely of one arch.

It is a wooden ſtructure, and is what the Germans call a *hængewerk*, or hanging bridge; the ſides and top are covered; the road, which is almoſt level, is not carried, as uſual, over the top of the arch, but is let into the middle, and there ſuſpended. The pier is not in a right line with the buttreſſes, as it forms an obtuſe angle pointing down the ſtream, being eight feet out of the rectilinear direction. The diſtance of this middle pier from the ſhore next to the town is a hundred and ſeventy-two feet, and from the other ſide a hundred and ninety-three; in all, three hundred and ſixty-five feet; making in appearance two arches of a ſurpriſing width, and forming a beautiful perſpective when viewed at ſome diſtance. A man of the ſlighteſt weight feels it almoſt tremble under him; yet waggons heavily laden paſs without danger. It has been compared to a tight rope, which trembles when ſtruck, but ſtill preſerves its firm and equal tenſion. I went under this bridge to examine its mechaniſm, and was pleaſed with the ſimplicity of the architecture: I was not capable of determining whether it reſts upon the middle pier, but many judges affirm that it does not.

On conſulting the greatneſs of the plan, and the boldneſs of the conſtruction, it is matter of aſtoniſhment that the architect was originally a carpenter, without the leaſt tincture of literature, totally ignorant of mathematics, and not verſed in the theory of mechanics. The name of this extraordinary man was Ulric Grubenman, a native of Tuffen, a ſmall village in the canton of Appenzel. Poſſeſſed of great abilities, and a ſurpriſing turn for the practical part of mechanics, he raiſed himſelf to great eminence; and may juſtly be conſidered as one of the moſt ingenious architects of the preſent century. The bridge was finiſhed in leſs than three years, and coſt ninety thouſand florins *.

This

* About 8000l. ſterling.—Mr. Andreæ, in his Letters upon Switzerland, has given two engravings of this bridge, to which he has added a very accurate deſcription of its mechanical conſtruction, communicated by Mr. Jetzler, of Schaffhauſen. In this deſcription he repreſents it as conſiſting of two arches, and reſting upon the middle pier. Several perſons well ſkilled in architecture maintained a contrary opinion; and in the former editions I was induced to adopt it, from the following reaſons. The architect himſelf conſtantly maintained that the bridge was not ſupported by the pier; his nephew, who was employed in its conſtruction, confirmed the ſame aſſertion; and as at firſt it did not even touch the pier, it muſt therefore, at that time, have been conſidered as forming but one arch. I muſt, however, candidly own, that in my ſubſequent viſits to Schaffhauſen in 1785 and 1786, I had reaſon to change my opinion. At thoſe periods the bridge was ſupported on piles, in order to undergo a thorough repair. Mr Spengler, a native of the town, had lately returned from Ruſſia, where he had paſſed many years in the capacity of an architect, fortunately diſcovered that much ill-ſeaſoned wood having been employed in its conſtruction, many of the timbers were abſolutely decayed; and that one ſide had greatly ſwerved from its original direction. This ingenious artiſt, after having expatiated on the ſimplicity and boldneſs of the deſign, informed me that the bridge undoubtedly conſiſts of two arches; and that although Grubenman, of whoſe abilities he ſpoke with deſerved encomium, affected to place the timbers in ſuch a manner as to reſemble but one arch, and always aſſerted that it was not ſupported by the pier; yet that the whole fabric would undoubtedly have fallen, if that pier had been taken away. He obligingly ſhewed me his plan for repairing the bridge, and for ſtrengthening

This morning we rode about a league, to the Fall of the Rhine at Lauffen. Our route lay over the hills which form the banks of the river: the environs are picturesque and agreeable, the river beautifully winding through the vale. Upon our arrival at Lauffen, a small village in the canton of Zuric, we dismounted, and advancing to the edge of the precipice which overhangs the Rhine, looked down perpendicularly upon the cataract, and saw the river tumbling over the sides of the rock with amazing violence and precipitation. From hence we descended till we were somewhat below the upper bed of the river, and stood close to the fall, so that I could almost have touched it with my hand. A scaffolding is erected in the very spray of this tremendous cataract, and upon the most sublime point of view: the sea of foam rushing down; the continual cloud of spray scattered to a great distance, and to a considerable height; in short, the magnificence of the whole scenery far surpassed my most sanguine expectations, and exceeds all description. Within about an hundred feet of the scaffolding, two crags rise in the middle of the fall: the nearest is perforated by the continual action of the river, and the water forces itself through in an oblique direction with inexpressible fury, and an hollow sound. Having contemplated the awful sublimity of this wonderful landscape, we descended and crossed the river, which was extremely agitated.

Hitherto I had only viewed the cataract obliquely; but here it opened by degrees, and displayed another picture, which I enjoyed at my leisure, as I sat down on the opposite bank. The most striking objects were, the castle of Lauffen, erected upon the very edge of the precipice, and projecting over the river; near it, a church and some houses; a clump of cottages close to the fall; in the back ground, rocks planted with vines, or tufted with hanging woods; a beautiful little hamlet upon the summit, skirted with trees; the great body of water that seemed to rush out from the bottom of the rocks; the two crags boldly advancing their heads in the midst of the fall, and in the very point of its steepest descent, their tops feathered with shrubs, and dividing the cataract into three principal branches. The colour of the Rhine is extremely beautiful, being of a clear sea-green, and I remarked the fine effect of the tints, when blended with the white foam in its descent. There is a pleasing view from an iron foundery close to the river, which is dammed up, in order to prevent its carrying away the works and neighbouring cottages: by means of this dam a small portion of the river is diverted, turns a mill, and forms a little silver current, gliding down the bare rock, and detached from the main cataract. Below the fall the river widens considerably into a more ample bason; at the fall, the breadth seemed to be about three hundred feet. With respect to its perpendicular height, travellers differ: those who are given to exaggeration reckon it a hundred feet; but I should imagine about fifty or sixty feet will be nearer the truth. I stood for some time upon the brink of the cataract, beheld with admiration, and listened in silence; then crossed the river, remounted my horse, and returned to Schaffhausen.

Some writers have asserted that the Rhine precipitates itself in one sheet of water, and, as I before observed, from a perpendicular height of a hundred feet. In former ages this might be the fact; as it is probable that the space between the banks was once a level rock, and considerably higher, and that the river has insensibly undermined those parts on which it broke with the utmost violence; for, within the memory of

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it by means of additional timbers, in order to render it able to support its own weight, when the piles should be removed.

Vid *Briefe aus der Schweitz nach Hannover geschrieben.* Zuric, 1776.

This bridge was destroyed by the French in 1799, when they were driven from Schaffhausen by the Austrians.

several

ſeveral inhabitants of this town, a large rock has given way, that has greatly altered the view. Indeed, I am convinced that the perpendicular height of the fall diminiſhes every year, by the continual friction of ſo large and rapid a body of water, and have no doubt but that the two crags which now riſe in the midſt of the river, will in time be undermined and carried away. The Rhine, for ſome way before the fall, even near the bridge, daſhes upon a rocky bottom, and renders all navigation impoſſible.

I am, &c.

LETTER III.—*Iſle of Reichenau.—Conſtance.—Genevan eſtabliſhment.—Iſle of Meinau.—Lake of Conſtance.*

Conſtance, July 24.

YESTERDAY morning we quitted Schaffhauſen, and croſſed the Rhine at Dieſſenhoffen, a ſmall town in Thurgau; a country dependent upon the eight ancient cantons: from thence to Stein the road lay by the ſide of that river. Stein is an independent town under the protection of Zuric, but governed by its own laws and magiſtrates. At this place we took a boat to carry us to Conſtance. A little above Stein the river widens conſiderably, and forms the inferior lake of Conſtance, or the *Zeller See;* which is divided into two branches: from Stein to Conſtance is about ſixteen miles, and from the latter to Zell, its greateſt breadth, about ten.

A fine breeze ſoon carried us to the iſland of Reichenau, which belongs to the Biſhop of Conſtance: it is about three miles long, and one broad; contains about ſixteen hundred inhabitants, all Catholics, three pariſhes, one village, and a rich abbey of Benedictines, of which the Biſhop of Conſtance is abbot. The ſuperior was exceedingly civil, and ſhewed us all the relics and curioſities of the convent: among the latter was a curious tooth of Charles le Gros. That monarch, who was Emperor and King of France, and who poſſeſſed dominions as extenſive as thoſe of Charlemagne, lived to want the common neceſſaries of life, and to depend for his ſubſiſtence upon the charity of an Archbiſhop of Mentz. He was publicly depoſed in 887, at a meeting of the principal French, German, and Italian barons, whom he himſelf had ſummoned: after having languiſhed a year in extreme want and miſery, he died at a ſmall village near Mentz, in Germany, and his remains were conveyed to this convent. The next remarkable curioſity was an emerald, as it is called, of an extraordinary ſize, which, according to the annals of the convent, was a preſent from Charlemagne. Take its dimenſions, and then judge whether it can be an emerald: it has four unequal ſides, the longeſt is near two feet, and the broadeſt about nine inches it is one inch thick, and weighs about twenty-nine pounds. The ſuperior valued it at £4500; but if it is, as I conjecture, nothing more than a tranſparent green *ſpathfluor*, its value will be reduced to a few ſhillings. Upon our return to the inn where we dined, we found a preſent from the ſuperior, more valuable to us than all the relics and curioſities of his convent; two bottles of excellent wine, the growth of the iſland, which is almoſt a continued vineyard.

In the evening we arrived at Conſtance; the ſituation of which upon the Rhine, between the two lakes, is moſt delightful. I was much affected with the ſolitary appearance of a town once ſo flouriſhing in commerce, and ſo celebrated in the annals of hiſtory. A dead ſtillneſs reigns throughout; graſs grows in the principal ſtreets; in a word, it wears the melancholy aſpect of being almoſt totally deſerted, and ſcarcely contains three thouſand inhabitants. This city has endured a ſad reverſe of fortune: it was formerly in alliance with Zuric and Baſle, and ſupported by their aſſiſtance, expelled

the biſhop, and embraced the reformation. But the Proteſtant cantons being worſted in 1351; and the league of Smalcade, of which Conſtance was a member, being defeated by Charles V., the town was obliged to ſubmit to the Emperor, and re-admit the Catholic religion. From this period it loſt its independence, and, being neglected by the Houſe of Auſtria, fell by degrees into its preſent ſtate; exhibiting to ſome of the neighbouring ſwiſs cantons, an inſtructive contraſt, which muſt ſenſibly endear to them their own invaluable happineſs, in the commerce and liberties which they enjoy.

We paid a viſit to the chamber where the council of Conſtance was held in 1415, and had the honour of ſitting in the two chairs, in which ſat Pope John XXIII. *, and the Empezor Sigiſmond; if any honour can be derived from a turbulent eccleſiaſtic, and a perjured ſovereign. By a ſentence of this council, the celebrated reformer John Huſs, truſting to the protection of the Emperor, who violated his word, was burnt as an heretic. The houſe is ſtill ſhewn where he was ſeized; upon the walls is his head, carved in ſtone, but now almoſt defaced; with an inſcription under it in German. Jerome of Prague, his diſciple, had the weakneſs to recant before the ſame council; but this weakneſs was amply compenſated by the greatneſs of ſoul with which he again retracted this recantation, and by the calm and intrepid magnanimity which he diſplayed in his laſt moments at the ſtake. From the top of the cathedral we had a ſuperb view of the town, and of the two lakes; with the rugged Alps of Tyrol and Appenzel, their tops covered with perpetual ſnow.

Conſtance may again become a commercial town, through the permiſſion granted by the Emperor to the emigrants from Geneva, of ſettling and carrying on their trade and manufactures, with very conſiderable privileges. Meſſrs. Roman and Meilly, watchmakers of Geneva, were the firſt perſons, whom the troubles of their native republic drove to Conſtance. They received from the Emperor the following immunities for themſelves and countrymen:

The right of purchaſing or building houſes; free exerciſe of religion, entirely independent of the Catholic clergy; the power of erecting a tribunal for the purpoſe of deciding all affairs relative to their manufactures and commerce; exemption from ſerving in the militia and quartering ſoldiers, from all contributions during the ſpace of twenty years, from duties on their tools and utenſils; the ſtandard of the gold and ſilver employed in their manufactures to be invariably fixed. Theſe favourable terms, ſigned on the 30th of June 1785, attracted ſo many ſettlers to Conſtance, that, in my ſecond viſit to this place, on the 25th of October 1787, the new colony of Genevans conſiſted of ſeventy families, compriſing three hundred and fifty perſons; among theſe were fifty-four watchmakers, who had introduced the different branches of manufacture which belong to their trade. Four hundred watches were already finiſhed, and above fourteen hundred more were preparing.

The Emperor has alſo granted to Mr. Macaire the convent of Dominicans lately ſecularized, towards eſtabliſhing a manufacture of printed lines and cottons. The refectory is appropriated for the chapel of the new colony.

I did not omit viſiting a ſmall dungeon, about eight feet long, ſix broad, and ſeven high, in which John Huſs was confined, wherein I obſerved the very ſtone to which he had been chained. I entered it however with very different ſenſations from thoſe which I experienced in 1776, when this convent was the aſylum of monkiſh ſuperſtition. It is now the ſeat of trade and induſtry; and it muſt ſuggeſt a pleaſing reflection to a philoſophic mind, that a ſucceſſor of Sigiſmond, who violated his word, ſhould have

* He was depoſed in this council.

conſigned

conſigned to a reformed eſtabliſhment that very convent in which the Bohemian divine was impriſoned, and from which he was led to the ſtake, and that the moſt enlarged principles of toleration ſhould be manifeſted in the ſame ſpot, where perſecution was inculcated by precept and example. It is the triumph of reaſon and religion over bigotry and intolerance.

I am juſt returned from a pleaſant expedition to the ſmall iſland of Meinau, in a bay of the ſuperior lake: this iſland, about a mile in circumference, belongs to the knights of the Teutonic order. The bailiff ſhewed us the houſe of the commander, which is prettily ſituated, and has a fine proſpect of the lake, but contains nothing remarkable except the cellars, which are well ſtocked with wine; an article from which the chief revenue of the commandery ariſes. Our good friend the bailiff was very free in offering it; and we, not to appear inſenſible of his civility, were conſtrained to taſte ſeveral different ſorts, which he ſucceſſively preſented, always praiſing the laſt as the oldeſt and moſt exquiſite. The wine was indeed excellent, the glaſſes large, and a formidable row of enormous caſks ſtill remained untaſted; ſo that, after having duly extolled ſeveral ſpecimens, we found it expedient to decline the farther ſolicitations of our generous hoſt: for, had we performed the whole ceremony, we muſt have taken up our abode in the caſtle for the night.

July 25.

We ſet ſail about two hours ago from Conſtance. This ſuperior lake, or, as it is ſometimes called, the *Boden See*, is about fifteen leagues in length and ſix in its greateſt breadth: it is one of the great boundaries that ſeparate Switzerland from Germany. The borders conſiſt of gently riſing hills; on the left hand Suabia, and on the right Thurgau, with a variety of ſcattered towns, villages, and monaſteries: the form of the lake inclines to an oval, and the water is of a greeniſh hue. I am now writing aboard the veſſel, and have been for ſome time in vain attempting to diſtinguiſh (what ſome travellers have affirmed to be diſcernible) the waters of the Rhine from thoſe of the lake. The river in its courſe from the ſuperior lake, being exactly of the ſame beautiful greeniſh colour as the inferior lake into which it flows, it is evident that the one can never be diſtinguiſhed from the other. Probably upon its firſt entrance into the ſuperior lake it is troubled, and conſequently, for ſome way, its current may eaſily be traced: but it purifies by degrees, and becomes an indiſtinct part of the great body of water.

This lake, like all the other lakes of Switzerland, is conſiderably deeper in ſummer than in winter; a circumſtance owing to the firſt melting of the ſnow from the neighbouring mountains: it abounds in fiſh of various ſorts. Yeſterday evening, in our expedition to Meinau, there was ſcarcely a breeze ſtirring, and the lake was as ſmooth as chryſtal: a briſk gale has now raiſed a fine curl upon the ſurface, and the ſurrounding landſcape forms an aſſemblage of the moſt beautiful objects. In ſhort, the ſeveral views which preſent themſelves are ſo truly enchanting, as to make me regret every moment that my eyes are called off from the delightful ſcenes. You will not wonder therefore, if I am tempted to bid you adieu ſomewhat abruptly.

Yours, &c.

P. S. The following deſcription of the great trout which frequents all the Swiſs lakes, but more particularly abounds in the lake of Conſtance, was communicated by Thomas Pennant, Eſq. This ſpecies of trout is called in this neighbourhood *Illankin*, and by Linnæus, *Salmo Lacuſtris*. The head is conical, and larger in proportion than that of a ſalmon. The dorſal fin has twelve rays; pectoral, fourteen; ventral and anal, twelve each. The under jaw, in full grown fiſh, ends in a blunt hook. The colour, as low

as the lateral line, of a deep blue, brightening as it approaches the line, beneath that of a ſilvery white; all the upper part is ſpotted irregularly with black. This kind grows to the weight of forty or forty-five pounds.

Theſe fiſhes quit the deeps of the lake in April, and go up the Rhine to depoſit their ſpawn. The inhabitants of the ſhores form wears acroſs the river, in which they take them in their paſſage. They are alſo caught in nets. The fiſhery laſts from May to September; the fiſhermen avoid taking any on the return, as they are then very lean and quite exhauſted. In ſpring and ſummer their fleſh is of a fine red, and very delicate; but, after they have ſpawned, it turns white, and becomes very indifferent. They feed on fiſh, worms, and inſects, and are particularly deſtructive to the graylings. Their great enemy is the pike, which will attack an illankin four times as large as itſelf. For a further account, the reader may conſult the elegant Ichthyologie by Mr. Block, vol. iii. p. 155, who is the firſt naturaliſt that has given a ſatisfactory account of this gigantic ſpecies.

LETTER IV.—*St. Gallen.—Canton of Appenzel.*

July 26.

I WRITE to you from the midſt of the Alps, under the ſhade of a grove of beeches, while a clear ſtream of water, flowing at my feet, forms a natural caſcade down the rock. I have juſt made a hearty meal upon ſome bread and cheeſe; a moſt delicious repaſt, after walking ſix miles over the mountains of Appenzel.

We this day quitted St. Gallen, and walked to Appenzel. The country is ſingularly wild and romantic; conſiſting of a continued ſeries of hills and dales, vallies and mountains, the tops of which are crowned with moſt luxuriant paſtures. I could not have conceived it poſſible, without having been an eye-witneſs, that any diſtrict within the ſame compaſs could have exhibited ſo numerous a population; the hills and vales being thickly ſtrewed with hamlets, ſcattered at a ſmall diſtance from each other. The picturesque mountains, the foreſts, the currents which we croſſed, over bridges reſembling thoſe I have obſerved in ſome of the beſt landſcapes, added to the beauty of the ſcenes, and diverſified every ſtep with the moſt pleaſing objects. After having repoſed for a ſhort time in this delightful ſpot, I cannot employ myſelf more to my ſatisfaction than by continuing my journal.

In my laſt letter I took my leave of you upon the lake of Conſtance: we landed at Roſhach, a ſmall burgh in the dominions of the Abbot of St. Gallen, agreeably ſituated in the midſt of a bay at the edge of the lake, and at the bottom of a riſing hill, richly covered with wood and paſturages. From Roſhhach we went to St. Gallen, the whole territory whereof does not exceed a mile and a half in circumference; and including the town contains near eight thouſand inhabitants. Every thing was alive; all perſons wore the appearance of induſtry and activity; exhibiting a ſtriking oppoſition to Conſtance, which we had juſt quitted *.

The

* The ſubjects of the Abbot of St. Gallen amounted to not leſs than 90,000. His dominions compriſed, firſt, the ancient territory of the abbey (Alte Landſchafften); ſecondly, the country of Tockenburgh. That county was purchaſed in 1468, by Ulric Abbot of St. Gallen, from the laſt count, who died without iſſue male. As the people poſſeſſed very conſiderable privileges, and the Abbot was deſirous of extending his prerogatives, frequent diſputes aroſe, which increaſed after the reformation, when part of the inhabitants embraced the Proteſtant doctrines. Theſe diſputes were frequently renewed; the Abbot was ſupported by the Catholic; the people by the Proteſtant cantons; and in 1709 a civil war broke out in Switzerland, which is uſually called the war of the Tockenburg, and was terminated in 1712 by the pacification of Arau.

In

The Abbot and town of St. Gallen are both allies of the Swiſs cantons, and each enjoys the privilege of ſending deputies to the general diet. The Abbot of St. Gallen is titular prince of the German empire, and is choſen by the ſeventy-two Benedictines, who compoſe this chapter. He formerly poſſeſſed the ſovereignty of the town, but the inhabitants ſhook off his authority, and became independent: the various diſputes which ſince that period have ariſen between the two rival parties, have been compromiſed by the interpoſition of the Swiſs cantons. The town is entirely Proteſtant, and its government ariſto-democratical; the ſubjects of the Abbot (whoſe territory is very extenſive) are moſtly Catholics. It is remarkable, that the abbey in which the prince reſides is ſituated cloſe to the town, and in the midſt of its territory; as the town is alſo entirely ſurrounded by the poſſeſſions of the prince.

The town owes its flouriſhing ſtate to the uncommon induſtry of the inhabitants, and to a very extenſive commerce, ariſing chiefly from manufactures of linen, muſlin, and embroidery. In a place ſo entirely commercial, I was aſtoniſhed to find the arts and ſciences cultivated, and literature in high eſteem. In the library there are thirteen volumes in folio, containing manuſcript letters of the firſt German and Swiſs reformers. Luther ends a letter to Melancthon as follows:

Peſtis eram vivus, moriens ero mors tua, Papa.

Theſe letters would probably throw much light on the hiſtory of the reformation.

The library belonging to the abbey is very numerous and well arranged; and, among a number of monkiſh manuſcripts, contains ſeveral of the claſſic writers, which engaged my chief attention. To this library we owe Petronius Arbiter, Silius Italicus, Valerius Flaccus, and Quintilian, copies of which were found in 1413; it was formerly very rich in curious manuſcripts, but ſeveral being borrowed during the council of Conſtance by the cardinals and biſhops, were never returned.

The tranſition from the Abbot of St. Gallen to the canton of Appenzel will not appear abrupt, as Appenzel once belonged to the abbot: the inhabitants, however, being loaded with exorbitant and oppreſſive taxes, revolted in 1400, and maintained their independence with the deſperate courage of a ſpirited people, who fight for their liberties. In 1452 they entered into a perpetual alliance with ſome of the neighbouring Swiſs republics, and in 1513 were admitted into the Helvetic confederacy: they hold the laſt rank among the thirteen cantons.

Before the reformation the whole canton was under one government; but ſince that period, part of the inhabitants having embraced the Proteſtant religion, and the other part continuing Catholics, violent diſputes were kindled between them, which, after much conteſt, were at length compromiſed. By an agreement in 1597, the canton was

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In 1718 the conſtitution of the Tockenburg was ſettled, in which the prerogatives of the Abbot and the privileges of the people were preciſely aſcertained. Still, however, the oppoſite pretenſions of the Abbot and the people produced occaſional diſputes, and in the effervescence of the revolution the inhabitants vied with the Baſilians, and the borderers of the lake of Zuric, in their early demands of emancipation. They roſe in January, paid the ſum of 14,500 florins, the original purchaſe money, to the bailiff, drove him from the country, planted trees of liberty in different parts of the diſtrict, and even in the midſt of the abbey. On the 31ſt January the Prince Abbot quitted St. Gallen, and took refuge in the Briſgau.

In the new diviſions of Switzerland, the dominions of the Abbot and the town of St. Gallen are compriſed in the canton of Sentis, of which St. Gallen is the capital.

The people ſoon found the difference between their new and ancient rulers; for in the month of May they were ſo diſſatisfied with their government, that the French were obliged to ſend troops into the country to quell an inſurrection.

divided into two potions, *Rhodes Exterior*, and *Rhodes Interior*; it was ſtipulated, that the former ſhould be appropriated to the Proteſtants, and the latter to the Catholics. Accordingly the two parties ſeparated, and formed two republics; their government, police, and finances, being totally independent of each other. Each diſtrict ſends a deputy to the general diet; the whole canton however has but one vote, and loſes its ſuffrage if the two parties are not unanimous. In both diviſions the ſovereign power is veſted in the people at large; every male who is paſt ſixteen having a vote in their general aſſembly, held yearly for the creation of their magiſtrates and the purpoſes of legiſlation, and each voter is obliged to appear armed on that particular occaſion. The Landamman is the firſt magiſtrate; in each diſtrict there are two, who adminiſter the office alternately, and are confirmed yearly. They have each a council, which poſſeſſes juriſdiction in civil and criminal cauſes, has the care of the police, the management of the finances, and the general adminiſtration of affairs. The Landamman regent preſides; and the other, during the year in which he is out of office, is banneret, or chief of the militia.

The *Rhodes Exterior* is much larger, and more peopled in proportion than the *Interior*, and the Proteſtants are in general more commercial and induſtrious than the Catholics. The Proteſtants are ſuppoſed to amount to thirty-ſeven thouſand; the Catholics to twelve thouſand: an extraordinary number in ſo ſmall a canton, entirely mountainous, and of which a great part conſiſts of barren and inacceſſible rocks. But the induſtry of the inhabitants amply compenſates for any diſadvantages of ſoil: for, the people are frugal and laborious; their property is ſecured, and they are exempted from all burdenſome and arbitrary taxes. Theſe circumſtances, joined to the right of partaking of the legiſlation, and of electing their magiſtrates, inſpire them with ſuch animated ſentiments of their own importance and independence, as excite the moſt active and vigorous induſtry, and thoſe neceſſaries to which this induſtry is not ſufficient, are abundantly ſupplied by their neighbours, in exchange for manufactures and other articles of domeſtic commerce. The chief part of the habitable country conſiſts of rich paſtures, and of courſe their principal exports are cattle and hides, together with cheeſe and butter. Their manufactures are coarſe callicots and muſlins in great quantities, which are entirely made in the houſes of the inhabitants. The cotton is ſpun with the common wheel. The web is bleached at home, and afterwards ſent to be printed in the neighbourhood of Neuchatel. The greateſt bleachery I ſaw in the Alps was near Appenzel, which extended over three or four acres of ground. Part of the river Sitler is diverted to turn the mill, which is of the ſimpleſt conſtruction. A large wheel on the outſide works a long cylinder within, on which are fixed a number of cogs to raiſe the hammers which beat the webs. In the ſame place are the boilers and other conveniences for the buſineſs.

The only mills for ſpinning the cottons by water which I obſerved in Switzerland, were near Neuchatel and Geneva; but greatly inferior in ſize and ingenuity of machinery to thoſe of England.

The flouriſhing ſtate of the cotton manufactory has rendered many perſons in the Proteſtant diſtricts eaſy in their circumſtances, and even wealthy; if wealth is eſtimated from the general ſtate of the natives, and not from the comparative view of diſtant and greater opulence in large commercial cities. The villages of Trogen and Undevil announce, by their ſuperior neatneſs, the well-being of their inhabitants.

This canton contains no incloſed towns, but only two or three open burghs, of which Appenzel is the largeſt in the Catholic, Trogen, Undevil, and Heriſau in the Proteſtant diſtrict, and a few villages; indeed the whole country, except amongſt the barren

rocks, is almoſt a continued village, being thickly covered with excellent cottages. Each cottage has its little territory, or a field or two of fine paſture ground, which are frequently ſkirted with trees. The mountains are for the moſt part beautifully wooded; and the canton is ſupplied with water in ſuch exuberance, that we could hardly walk two hundred paces without ſeeing a ſpring bubble from the ground, or a torrent ruſh down the ſides of a rock.

In our way to Appenzel we entered ſeveral houſes, which were all built of wood; neatneſs and convenience being the principal object of the owners: ſuch a remarkable cleanlineſs prevailed throughout, as afforded a moſt ſtriking proof of the general attention which the people pay to that eſſential article. A continued chain of theſe cultivated mountains, richly clothed with wood, and thickly ſtudded with hamlets, which appear to have been placed by the genius of taſte in the very ſpots where they would form the moſt ſtriking effect, exhibit a ſeries of landſcapes inexpreſſibly pleaſing: it ſeemed as if they belonged to independent clans; independent but ſocial, uniting for the great purpoſes of legiſlation, and for the general preſervation of their liberties.

Among the chief part of the inhabitants, the original ſimplicity of the paſtoral life is ſtill preſerved; and I ſaw ſeveral venerable figures with long beards, that reſembled the pictures of the ancient patriarchs. The natives of this canton, in common with the inhabitants of democracies, poſſeſs a natural frankneſs, and peculiar tone of equality, which ariſe from a conſciouſneſs of their own independence. They alſo diſplay a fund of original humour, and are remarkable for great quickneſs of repartee, and rude ſallies of wit, which render their converſation extremely agreeable and intereſting.

In our way to Appenzel we paſſed through Tuffen, the birth-place of Ulric Grubenman, whom I mentioned in a former letter *: he has been dead ſome years, but his abilities and his ſkill in practical architecture are, if I may uſe the expreſſion, hereditary in his family. We enquired for one of the ſame name, who was either his brother or his nephew, whom we found at the alehouſe. He is a heavy, coarſe-looking man, dreſſed like a common peaſant, has a quick and penetrating eye, and great readineſs of converſation. We told him that we were Engliſhmen, who were making the tour of Switzerland; and that we could not paſs through Tuffen without deſiring to ſee a man who was ſo much celebrated for his ſkill in architecture. He ſtruck his breaſt, and replied in German, "Here you ſee but a boor." Upon our talking with him about the bridge of Schaffhauſen, in the building of which he was employed, he aſſured us, that it does not reſt upon the middle pier, but is in reality a ſingle arch. Near Appenzel we obſerved an old man with venerable white hair hanging over his ſhoulders, who looked like a ſubſtantial farmer: he enquired with a tone of authority, but with perfect civility, who we were, and, upon our aſking the ſame queſtion reſpecting himſelf, our guide informed us, that he was the *Landamman*, or chief of the republic. Happy people, the nature of whoſe country, and the conſtitution of whoſe government both equally oppoſe the ſtrongeſt barrier againſt the introduction of luxury!

Doctor Girtanner, of St. Gallen, found in great abundance, on the top of the Appenzel mountains, the *Draba Pyrenaica* of Linnæus, not mentioned by Haller, in his catalogue of of the Swiſs plants.

Appenzel, July 27. Your, &c.

* See page 643.

LETTER V. — *Valley of the Rhine.—The Lake and Town of Wallenſtadt.*

Salets, July 27.

WE are this moment arrived at the village of Salets, where we propoſe paſſing the night: while ſupper is preparing, I will continue my journal. We could procure but three horſes at Appenzel, and as one of them was appropriated to the baggage, I preferred walking. After having traverſed a league in the canton, over a continued range of mountains, enriched with beautiful meadows, and dotted with cottages, I reached its boundary; here the ſcene changed into a wild foreſt of firs and pines, without the leaſt appearance of any habitation. The road is ſcarcely more than three feet broad, and is either paved with large uneven pieces of rock, or formed of thick ſtakes laid cloſely together; but as the ground is in many parts ſofter than in others, theſe ſtakes in ſome places ſink deeper, and form a ſucceſſion of uneven ſteps. The mountain by which we deſcended into the plain is very ſteep; which circumſtance, added to the unevenneſs of the ſtakes, makes the aſcent and deſcent exceedingly difficult for horſes. Thoſe who are pleaſed with an uniform view, may continue in the plain; while others, who delight in the grand and the ſublime, and are ſtruck with the wantonneſs of wild, uncultivated nature, will prefer this road to the ſmootheſt turnpike in Great Britain.

I walked ſlowly on, without envying my companions on horſeback; for I could ſit down upon an inviting ſpot, climb to the edge of a precipice, or trace a torrent by its ſound. I deſcended at length into the *Rheinthal*, or Valley of the Rhine; the mountains of Tyrol, which yielded neither in height or in craggineſs to thoſe of Appenzel, riſing before me. And here I found a remarkable difference: for although the aſcending and deſcending was a work of ſome labour; yet the variety of the ſcenes had given me ſpirits, and I was not ſenſible of the leaſt fatigue. But in the plain, notwithſtanding the ſcenery was ſtill beautiful and pictureſque, I ſaw at once the whole way ſtretching before me, and had no room for freſh expectations; I was not therefore diſpleaſed when I arrived at Oberriede, after a walk of about twelve miles, my coat ſlung upon my ſhoulder like a peripatetic by profeſſion. Here we procured a narrow cart; in which, the roads being rough and ſtony, you will readily believe we were not much at our eaſe. The evening however being fine, and the moon exceedingly bright, our journey was not altogether diſagreeable; as it led us through a delightful country abounding in vines, fruit-trees, flax, and paſturage.

The Rheinthal is a bailliage belonging to Appenzel and the eight ancient cantons, which alternately appoint a bailiff. The people are of both religions, but the Proteſtants are the moſt numerous.

Wallenſtadt, July 28.

WE quitted Salets this morning, in the ſame cart in which we arrived, and it would have afforded matter of ſome ſpeculation to obſerve how we contrived to arrange ourſelves, our ſervants, a large Newfoundland dog, and the baggage, in ſo narrow a compaſs: indeed we were ſo wedged in that, after we had fixed ourſelves in our ſeveral places, it was almoſt impoſſible to ſtir. The day was ſultry, the road bad, and the cart went barely at the rate of three miles an hour; but the country ſtill continued ſo pictureſque and mountainous, and our attention was ſo entirely engaged with the perpetual variety of objects preſented to our view, as to make us forget the inconveniences of our equipage, and the exceſſive heat of the weather. From Trivabach, a ſmall village upon

the Rhine, we walked to Sargans, the capital of a bailliage of the ſame name, belonging to the eight ancient cantons.

Let me here remark, that in Switzerland there are two ſorts of bailliages: the one conſiſting of certain diſtricts, into which all the ariſtocratical cantons are divided; and over theſe a particular officer, called a *bailiff*, is appointed by government, to which he is accountable for his adminiſtration; the other ſort are territories belonging to two or more of them, who by turns appoint a bailiff. This officer, when not reſtrained by the peculiar privilege of certain diſtricts, has the care of the police, juriſdiction in civil and criminal cauſes with ſome limitations, and enjoys a ſtated revenue ariſing in different places from certain duties and taxes. In caſe of exaction or mal-adminiſtration, an appeal always lies from the bailiff to the cantons, to which the bailliage belongs; and the place, the time, and the members who receive the appeal, are regulated with the utmoſt exactneſs. With reſpect to this of Sargans, and the others belonging to the eight ancient cantons conjointly; at the concluſion of the general diet held annually at Frauenfield in Thurgau, the deputies of theſe cantons reſolve themſelves into a ſyndicate, examine the accounts of the public revenues as delivered by the bailiffs of the reſpective diſtricts, and receive and judge all appeals; in ſome caſes finally: but in the more important cauſes an appeal lies from this aſſembly to the ſuperior tribunal of each canton.

We arrived late at Wallenſtadt, a town incorporated into the bailliage of Sargans, but enjoying ſeveral diſtinct privileges: it derives its exiſtence from the paſſage of the merchandiſe tranſported from Germany through the Griſons to Italy. This communication occaſions the frequent reſort of Italian merchants; and that language is underſtood by many of the inhabitants. Our landlord ſpeaks Italian, and has been very accurate in his anſwers to my queſtions relating to the number of inhabitants, the government of the town, its dependance upon the bailiff, and its privileges. Nor is this a matter of wonder: for the innkeepers in Switzerland are moſtly *burghers*, and are frequently members of the ſovereign council; and, from the very nature of their governments, the Swiſs in general are well informed of their particular conſtitutions. I have alſo held a long converſation with a native of Glarus, who has furniſhed me with much information in relation to that canton, which we purpoſe viſiting to-morrow.

Weſen, July 29.

THE lake of Wallenſtadt, about twelve miles in length, and two in breadth, is entirely bounded by high mountains, except to the eaſt and weſt. From this ſituation a breeze generally blows from thoſe two quarters, beginning at break of day, and continuing for ſome hours; then changes from weſt to eaſt till ſun-ſet: this breeze is very convenient for the tranſportation of the merchandiſe. Sometimes, however, a violent north wind ruſhes down from the mountains, and renders the navigation dangerous. We were aſſured by the inhabitants, and by the watermen who rowed us from Wallenſtadt to this place, that the breeze above mentioned was generally conſtant: but we cannot atteſt it from our own experience, as we ſet out this morning about eight, and the wind was directly contrary the whole way, blowing from weſt to eaſt. The weather, it is true, was heavy, overcaſt, and rainy, which might cauſe perhaps this occaſional variation.

The ſcenery of the lake is uncommonly wild and pictureſque, and affords a perpetual variety of beautiful and romantic ſcenes. On the ſide of Glarus, the mountains which form its borders are chiefly cultivated; enriched with wood or fine meadows, and ſtudded with cottages, churches, and ſmall villages; the Alps of Glarus riſing behind, their tops covered with ſnow. On the other ſide, for the moſt part, the rocks are groteſque, craggy, inacceſſible, and perpendicular: but here and there a few cultivated necks of land,

land are formed at the very edge of the lake, and at the bottom of these very rocks, exhibiting a beautiful contrast to the barrenness above and around them. Numberless water falls, occasioned by the melting of the snows, fall down the sides of the mountains from a very considerable height, and with an almost inconceivable variety; some seeming to glide gently in circular directions; others forming vast torrents, and rushing into the lake with noise and violence; all changing their form and their position as we approached or receded from them. The lake is exceedingly clear, deep, and cold, and, as we were informed, is never frozen.

There is nothing remarkable in this place, being a small village situated almost upon the point where the Mat issues from the lake of Wallenstadt: that little river is joined by the Linth, and both united fall, under the name of Limmat, into the lake of Zuric.

I am, &c.

LETTER VI.—*The Canton of Glarus.*

Glarus, July 29.

THE canton of Glarus was formerly subject to the abbess of the convent of Seckinguen in Suabia: the people, however, enjoyed very considerable privileges and a democratical form of government, under the administration of a mayor, appointed by the abbess, but chosen among the inhabitants. Towards the latter end of the thirteenth century, the Emperor Rodolph I. obtained the exclusive administration of justice; and not long afterwards his son Albert, having purchased the mayoralty, which had gradually become hereditary, re-united in his person the whole civil and judicial authority. Albert, and his immediate descendants the Dukes of Austria, oppressed the people, and ruled over them with an absolute sway. In 1350, Schweitz, assisted by Zuric, Lucerne, Uri, and Underwalden, expelled the Austrians from the canton of Glarus, and re-established the democracy. Glarus then entered into a perpetual alliance with its deliverers, and was received into the Helvetic confederacy with some restrictions, which were not abolished until 1450. At that time it was the sixth canton, but is now the last in rank of the eight *ancient* cantons, as they are called; being so distinguished, because, from the accession of Zug and Bern in 1352, more than a century elapsed before a new member was admitted. These *ancient* cantons have also several privileges superior to the five others; the latter having submitted to some particular restrictions, upon their reception into the Helvetic league.

The people of Glarus enjoyed their liberties unmolested till 1388, when the Austrians made an irruption into the canton, with a force sufficient, as they arrogantly thought, totally to subdue it, pillaging the country, and massacring the inhabitants. It was then that three hundred and fifty troops of Glarus, assisted by thirty Switzers, resisted the whole strength of the Austrian army: the former were posted advantageously upon the mountains, and the latter, to the number of fifteen thousand, at a village called Næfels. In this situation the Austrians began the attack; but were soon compelled to retreat with great precipitation, by a shower of stones poured upon them from the heights: in this moment of confusion the inhabitants rushed down upon the enemy with redoubled fury, they broke their ranks, and, after an immense slaughter, forced the remainder to retire from the canton. Such surprising victories, gained by a handful of men against an enemy so much superior in number, (instances of which are by no means rare in the history of Switzerland,) render the wonderful combats of Marathon and Platæa, when the Grecks repulsed the numerous hosts of the whole Persian empire perfectly credible. The same love of independence, the same dread of slavery, and the same attachment to their

their country, animated the reſpective nations to the ſame deeds of heroiſm: in both inſtances victory was followed by the ſame glorious conſequences; for the Swiſs, as well as the Greeks, owe the riſe and preſervation of their liberties to that magnanimous and determined valour, which prefers death to life under the ſervile domination of an arbitrary deſpot. The people ſtill celebrate the anniverſary of this victory, which inſured their independence, and I ſaw near the village of Næfels ſeveral ſtones, with no other inſcription than 1388; an inſcription which no more requires explanation to an inhabitant of the canton, than the glorious æra of 1688 to an Engliſhman.

In the ſixteenth century the reformation was introduced into this canton, but not excluſively: both religions are tolerated, and the two ſects live together in the greateſt harmony; an union the more remarkable, when we conſider the fatal quarrels that have been kindled in Switzerland on account of religious tenets, and that in Appenzel the diviſion between the two ſects is diſtinctly marked by their inhabiting different diſtricts, and living under ſeparate governments. In ſeveral parts of this canton, the Proteſtants and Catholics ſucceſſively perform ſervice in the ſame church; and all the offices of ſtate are amicably adminiſtered by the two parties. During the preſent and preceding century, the Proteſtants have increaſed conſiderably in number; and their induſtry, in every branch of commerce, is greatly ſuperior; an evident proof how much the tenets of the Roman Catholic church fetters the genius, and depreſs the powers of exertion.

The government is entirely democratical: every perſon at the age of ſixteen has a vote in the *Landſgemeind*, or general aſſembly, which is annually held in an open plain. This aſſembly ratifies new laws, lays contributions, enters into alliances, declares war, and makes peace. The *Landamman* is the chief of the republic, and is choſen alternately from the two ſects; with this difference, that the *Proteſtant* remains three years in office, the *Catholic* only two. The manner of election is as follows: five candidates choſen by the people draw lots for the charge. The other great officers of ſtate, and the bailiffs, are taken alſo by lot from a certain number of candidates propoſed by the people. The executive power is veſted in the council of regency, compoſed of forty-eight Proteſtants, and fifteen Catholics: each ſect has its particular court of juſtice; and it is neceſſary that in all law-ſuits between two perſons of different religions, the perſon having the caſting voice among the five or nine judges, who are to determine the cauſe, ſhould be of the ſame religion as the defendant.

Cattle, cheeſe, and butter, conſtitute the principal commerce of the canton. The cattle are fed in ſummer upon the Alps: it is computed that ten thouſand head of large cattle, and four thouſand ſheep, are paſtured during that ſeaſon upon the mountains belonging to the canton. The inhabitants alſo manufacture linen and muſlins.

Among the exports a conſiderable article is ſlate, with which the canton abounds. The principal quarry is in the valley of Sernft, where large ſlates are dug up that ſerve for tables. Theſe quarries, as I am informed by Mr. David Pennant, once furniſhed Great Britain with ſlates for writing, or accomptants' ſlates; but this trade is entirely loſt. Of late they have been prepared from the great ſlate quarries in Caernarvonſhire, the property of Lord Penryn, and with ſuch ſucceſs, as bids fair to extend this article of commerce over moſt part of Europe.

July 30.

I AM juſt returned to Glarus, after having made an excurſion towards the extremity of the canton: it is entirely encloſed by the Alps, except towards the north; and there is no other entrance but through this opening, which lies between the lake of Wallenſtadt and the mountains ſeparating this canton from that of Schweitz. Paſſengers indeed

deed may in ſummer traverſe theſe Alps to the Griſons on one ſide, and to Uri on the other; but theſe paths are in winter abſolutely impracticable. At the entrance above-mentioned the canton reaches, from the banks of the Linth to the fartheſt extremity of its Alps, about thirty miles; forming a valley, which becomes narrower as you advance, and is ſcarcely more than a muſket-ſhot in breadth at the burgh of Glarus. It afterwards opens by degrees, and about a league from the laſt-mentioned burgh, is divided by the Freyberg mountains: at the point of this diviſion the two rivers, Linth and Sernft, unite.

We continued through the largeſt of theſe vallies, which, though very narrow, is exceedingly populous. You have been at Matlock in Derbyſhire, and I remember your admiration of its beautiful and romantic ſituation: the ſcenery of this valley is of the ſame caſt, but infinitely more picturesque, more wild, more varied, and more ſublime. The Linth is much broader and more rapid than the Derwent, and the hillocks of the Peak are mere mole-hills to the Alps of Glarus. Theſe ſtupendous chains of rocks are abſolutely perpendicular, approach one another ſo near, and are ſo high, that the ſun may be ſaid to ſet, even in ſummer, at four in the afternoon. On each ſide are numbers of thoſe water-falls we ſo much admired during our paſſage over the lake of Wallenſtadt; one in particular near the village of Ruti, foamed down the ſteep ſides of a mountain, from the midſt of a hanging grove of trees. I was ſo captivated with theſe enchanting ſcenes, that I could not help ſtopping every moment to admire them: our guide, not conceiving it poſſible that theſe delays could be owing to any other cauſe than the lazineſs of my horſe, never failed to ſtrike the poor beaſt, and continually awakened me out of my rapturous contemplations; it was ſome time before I could make him comprehend that I ſtopped by choice, and wiſhed to continue my own pace. After having rode about ten miles, we quitted our horſes and walked. Near Leugelbach, a conſiderable rivulet is formed by two ſtreams burſting from the ground at the foot of a mountain, which after a few paces unite and fall into the Linth: beſide theſe two principal branches, ſeveral ſmaller ſprings, and numberleſs little fountains, guſh from the rock. The clearneſs of the ſtreams; their rapidity and murmuring ſound; the trees that hang over the point from whence they iſſue; the rude rocks above; the rich meadows and ſcattered hamlets; all together form an aſſemblage of the moſt lively and pleaſing objects that ever compoſed a beautiful landſcape.

I am informed by Mr. David Pennant, that ſalmons force their way annually from the ſea as high as this river, to depoſit their ſpawn. Their progreſs is up the Rhine, and out of that noble river up the Aar, and through the lake of Zuric into the Linth, a courſe of many hundred miles. They are taken in theſe diſtant parts in September and October, and about the ſize of ſeventeen or twenty pounds weight.

We croſſed the Linth ſeveral times, which ruſhes with all the violence of a torrent, and came at length to an amphitheatre of mountains, where the valley ended: on our right hand a fall more conſiderable than any we had yet ſeen, tumbling perpendicularly over a bare rock in a large body of water; the Alps on each ſide crowned with inacceſſible foreſts, and covered with everlaſting ſnow; before us a pyramidical mountain, bare and craggy; and the glaciers of Glarus cloſing the view. Here the valley and the habitable part of the canton terminate. We then quitted the plain, and aſcending through a wild foreſt of beech and pines, continued more than an hour mounting a very ſteep and rugged path, till we came to the Panten-Bruck, a bridge over the cataract that forms the Linth, which is here called the Sand-Bach: it roars from the glacier down the ſteep mountain in one unbroken fall, and, a little way before its arrival under the bridge, works itſelf a ſubterraneous paſſage through the rock, where it is

loſt

loſt only to appear again with increaſed violence and precipitation. The bridge is a ſingle arch of ſtone, of about ſeventy feet in length, thrown over a precipice of above three hundred feet in depth. It ſerves as a communication with the upper Alps, and is the paſſage for the cattle which are fed there during the ſummer months; on the other ſide ſome goats came jumping around us, and ſeemed to welcome us to their dreary habitations. Theſe mountains are covered with a great variety of rare plants, which made me regret, that I had not purſued my botanical ſtudies. As I leaned upon the parapet of the bridge, and looked down into the chaſm beneath, my head almoſt turned giddy with the height. The rock, down which the Sand-bach drives, is compoſed of ſlate. After we had continued ſome time admiring the ſublime horror of the ſcenery, we deſcended into the valley, and made a hearty meal upon ſome excellent bread, honey, butter, and milk, which a neighbouring cottage ſupplied. As the canton almoſt entirely conſiſts of rich meadows, the milk and butter are delicious, and the honey of theſe mountainous countries is moſt exquiſite. Nothing delights me ſo much as the inſide of a Swiſs cottage: all thoſe I have hitherto viſited, convey a little image of cleanlineſs, eaſe, and ſimplicity; and muſt ſtrongly impreſs upon the obſerver a moſt pleaſing conviction of the peaſant's happineſs.

If I had never ſeen theſe little democratical ſtates, I could have formed no idea of the general equality and indiſtinction that prevails among the inhabitants. All the houſes, like thoſe of Appenzel, are built of wood; large, ſolid, and compact, with great penthouſe roofs that hang very low, and extend beyond the area of the foundation. This peculiar ſtructure is of uſe to keep off the ſnow; and, from its ſingularity, accords ſurpriſingly with the beautiful wildneſs of the country. The houſes of the richer inhabitants in the principal burghs, are of the ſame materials: the only difference conſiſts in their being larger.

The police is well regulated throughout Switzerland, and even in theſe democratical ſtates liberty does not often degenerate into licentiouſneſs; we may except, perhaps, the day of their general aſſemblies, when it is impoſſible to prevent ſome degree of confuſion in a meeting where there is ſcarcely any diſtinction of perſons; and where every peaſant conſiders himſelf as equal to the firſt magiſtrate.

Our hoſt is an open-hearted, honeſt Swiſs: he brings his pint of wine, ſits down to table with us, and chats without the leaſt ceremony. There is a certain forwardneſs of this kind which is inſupportable, when it apparently is the effect of impertinent curioſity, or fawning officiouſneſs; but the preſent inſtance of frank familiarity, ariſing from a mind conſcious of its natural equality, and unconſtrained by arbitrary diſtinctions, is highly pleaſing; as the ſimple demeanour of unſophiſticated nature is far preferable to the falſe refinements of artificial manners. I am, &c.

LETTER VII.—*The Abbey of Einſidlin.—Rapperſchwyl.*

Einſidlin, July 31.

WE could not paſs through this part of the country, without making a pilgrimage to Einſidlin, and paying our reſpects to this celebrated ſhrine: an object of much devotion among the Catholics. Einſidlin, or *Notre Dame des Hermites* is a rich and magnificent abbey of Benedictines in the canton of Schewitz, which owes its celebrity to the miraculous image, as it is called, of the Virgin Mary. The ridiculous tales they relate of the origin and aggrandizement of this abbey, are ſo many melancholy inſtances of the credulity of the darker ages: that they are ſtill believed in the preſent enlightened

century, muſt be attributed to the force of habitual prejudice; and at the ſame time proves, how difficult it is for the human mind to ſhake off thoſe ſuperſtitious errors, which it has early imbibed under the name of religion.

In the ninth century a certain hermit called Meinrad, was the firſt who retired to this place, where he built a chapel, and was aſſaſſinated by robbers. But ſhall I tell you, or (what is more to the purpoſe) will you believe me if I tell you, that this murder was diſcovered by two crows, who followed the aſſaſſins to Zuric, where they were ſeized and executed? Soon after, the dead body of St. Meinrad of courſe works miracles; and all the world pilgrimiſes to his bones. The ſanctity of this place being thus eſtabliſhed, ſome one (for whether it were St. Benno or St. Eberhard, or what other ſaint I cannot preciſely determine,) conſtructed another chapel, which he dedicated to the Virgin, and laid the firſt foundation of the abbey; having bequeathed for that purpoſe his whole fortune: and the pious fund was ſoon conſiderably augmented by ſubſequent donations. Shall I tell you alſo, that in 948, Conrad, biſhop of Conſtance, as he was going to conſecrate the chapel, heard a voice from heaven, aſſuring him, that God himſelf had conſecrated it? Whatever was its origin, and whoever was its founder, crouds of pilgrims reſort hither from all quarters to adore the Virgin, and to preſent their offerings: and it is computed, that upon the moſt moderate calculation, their number amounts yearly to 100,000. The circumjacent country was formerly a continued foreſt, which ſince the erection of the abbey has been gradually converted into rich paſtures and beautiful meadows: and this is a miracle which the Virgin, in a certain ſenſe, may be truly ſaid to have performed.

Auguſt 1.

I have juſt been viſiting the abbey, the chapel of the Virgin, and her immenſe treaſures. The church of the abbey is a large and magnificent building, but exhibits a remarkable ſpecimen of falſe taſte, being loaded with bad paintings, and ſuperfluous ornaments. In the aiſle not far from the entrance, is a ſmall and elegant marble chapel of the Corinthian order: this is the celebrated ſhrine of the Virgin, to which the pilgrims reſort. On the outſide an angel ſupports the following inſcription:

Hic eſt plena remiſſio peccatorum omnium a culpâ et pœnâ.

Over the door is a plate of ſilver with five holes, into which I ſaw ſeveral perſons thruſting their fingers, and praying at the ſame time with great fervour: upon inquiry I found, that the credulous people believed theſe holes to be the marks of God's fingers. In the inſide of this chapel is the image of the Virgin, which vies with the Lady of Loretto in *beauty* of countenance; her face, as well as that of the child ſhe holds in her arms, being black. She is richly apparelled, and changes her garment every week; her wardrobe conſiſting of fifty-two different ſuits.

The riches of the treaſury are immenſe; containing numberleſs offerings of gold, ſilver, and precious ſtones, arranged in the moſt ridiculous manner; ſkulls and bones ſumptuouſly ornamented; whole ſkeletons of ſaints in maſquerade, and ladies with ruffles, fly-caps, and ſplendid apparel as if dreſſed for a ball. What a wretched inſult upon poor human nature! I could not help conſidering them with a mixture of pity and indignation, as the offerings of ignorance before the ſhrine of bigotry and ſuperſtition. The miracles which the Virgin has wrought in this country are infinite, if we may judge from the numerous figures of ears, eyes, legs, arms, heads, &c. repreſented by thoſe, who fancied themſelves reſpectively cured in thoſe ſeveral members, by the power of this wonder-working image.

I was glad, however, to find in the midſt of this ſuperſtitious trumpery, a good library, which contained ſome fine editions of the claſſics.

In this place there is a conſiderable traffic in roſaries, croſſes, and little images; and there are rows of ſhops, where nothing is to be purchaſed but theſe neceſſary appendages of the Roman Catholic religion: it has all the appearance of a fair. There is alſo a room in the abbey, where the ſame kind of merchandize is expoſed to ſale; and one of the friars attends to receive your money, and very gravely aſſures you, that the ſeveral articles have touched the ſacred image. Among other curioſities of this kind, I purchaſed two ribbands, for two pence each, with the following inſcription upon them: *Ce Ruban entier, eſt la longueur; juſqu'au trait eſt l'epaiſſeur, de l'image de Notre Dame des Hermites. Il a touché l'image miraclueuſe.*

This abbey is very rich, and has conſiderable revenues in the canton of Zuric. The abbot, who is titular prince of the German empire, is elected by ſixty Benedictines, that form the chapter*.

As I walked to this celebrated convent, I found the whole way furniſhed with ſtalls, provided with cakes, whey, and other refreſhments for the numerous pilgrims then on their road. I ſaw ſeveral hundreds, in groups of different numbers. Some conſiſted of a whole pariſh, attended by their ſpiritual paſtor. More than once I obſerved ſome grievous ſinner driven from the flock, and walking at a diſtance counting his beads, bare-footed and bare-headed, doing full penance for his crimes. I alſo ſaw ſeveral bevies of merry damſels, who ſeemed to enjoy the pilgrimage as much as Welſh laſſes reliſh a wake. They often turned into the little chapels which lay open on the way, and wantonly ſprinkled each other with holy water.

This day's journey reminded me of Chaucer's Tales, in which he exactly deſcribes this pilgrimage, in his account of that to the ſhrine of St. Thomas of Canterbury:

> From every place the pious ramblers ſtray,
> But moſt to good Einſidlin bend their way:
> There at the martyr's ſhrine, a cure they find
> For each ſick body, and each love-ſick mind.

Rapperſchwyl, Auguſt 2.

The evening, yeſterday, being fine and cool, I walked from Einſidlin to this place. After we had aſcended about three miles, a view of the lake of Zuric, and of the adjacent country, opened upon us at once. The proſpect was extenſive and beautiful: the ſolemn ſtillneſs of the evening, the calmneſs of the lake, and the tints of the ſetting ſun, which glowed around the horizon, very much improved its charms. When we arrived at the lake the moon began to riſe; and, throwing its beams acroſs the water, formed another ſcene, more mild indeed, but not leſs affecting. We then croſſed the bridge of Rapperſchwyl, built over the narroweſt part of the lake: it meaſured near 1700 paces. The town is pleaſantly ſituated upon a neck of land or promontory. It

* On the 2d of May 1798, a French column, under the command of General Treſinet, after defeating the Swiſs peaſants on the borders of the lake of Zuric, and pillaging and burning ſeveral villages, arrived at Einſidlin. They found the abbey deſerted by all the monks except one, and ſtripped of all its treaſures. The image of the Virgin was ſent to Paris as a companion to that of Loretto, and General Schawembourg ordered the abbey to be inſtantly demoliſhed in his preſence. Planta, p. 442.

The demolition of this building was announced to the new Helvetic diet aſſembled at Arau, and is thus recorded in the new annals of Switzerland:

"Citizen Haas informed the Aſſembly, that General Schawembourg had reſolved to deſtroy the convent of Einſidlin, and to preſerve only ſuch buildings as were neceſſary for the purpoſes of agriculture; that no veſtige of that den of fanaticiſm and ſuperſtition ſhould remain." *Moniteur, 3 Prairial, l'An 6.*

formerly threw itself under the protection of Uri, Schweitz, Underwalden, and Glarus, with a reserve of all its privileges: but these cantons, shamefully oppressing the inhabitants, and encroaching upon their liberties, Zuric and Bern took possession of the town in 1712, and restored its antient immunities. From that period Rapperschwyl has continued under the protection of Zuric, Bern, and Glarus; the latter having preserved its right by its neutrality. By this treaty the town having recovered its former prerogatives, the inhabitants, in testimony of their gratitude, placed the following inscription over the gates: *Amicis Tutoribus floret libertas.*

This small republic is governed by a great and little council, consisting of forty-eight members. The town contains two hundred burghers, and about a thousand inhabitants, all Catholics. Its territory is about a league in circumference, and comprehends three parishes. Yours, &c.

LETTER VIII.—*Town and Canton of Zuric.*

Zuric, August 3.

YESTERDAY we dined luxuriously with the Capuchin friars at Rapperschwyl, who seldom treat their guests in so sumptuous a manner. It was one of their great feast-days; and they regaled us with every variety of fish, with which the lake and the neighbouring rivers abound. The convent stands upon the edge of the water, and commands an agreeable prospect: the library is by far the pleasantest apartment, though not the most frequented. The cells of the monks are small, and yet not inconvenient; but cleanliness does not seem to constitute any part of their moral or religious observances. Indeed the very habit of the order is ill calculated for that purpose, as they wear no shirt or stockings, and are clothed in a coarse kind of brown drugget robe, which trails upon the ground. Strange idea of sanctity! as if dirt could be acceptable to the Deity. I reflected with particular satisfaction, that I was not born a member of the Roman Catholic church; as perhaps the commands of a parent, a sudden disappointment, or a momentary fit of enthusiasm, might have sent me to a convent of Capuchins, and have wedded me to dirt and superstition for life.

After dinner we took leave of our hosts, and departed for Zuric by water: the lake is near ten leagues in length, and one in breadth. This body of water is of an oblong form, and not near so large as that of Constance; but the borders are studded more thickly with villages and towns. The adjacent country is finely cultivated and well peopled; and the southern part of the lake appears bounded with the high stupendous mountains of Schewitz and Glarus: the scenery is picturesque, lively, and diversified.

Zuric was formerly an imperial city, and obtained from the Emperor Frederick II. very considerable privileges; which were acknowledged and augmented by several of his successors. The civil war between the magistrates and the people, in 1335, nearly reduced the city to ruins; but the former being banished, the citizens, in 1337, established a new form of government, which was confirmed by the Emperor Louis of Bavaria. The exiles, after several fruitless attempts, were at length re-admitted; but, engaging in a conspiracy against the citizens, were discovered and put to death. In consequence of this execution, the nobles in the neighbourhood took up arms; and Zuric, after having ineffectually applied for assistance to the Emperor Charles IV., formed an alliance with Lucerne, Uri, Schweitz, and Underwalden, and was admitted a member of their confederacy. This event happened in the year 1351. The four cantons

yielded

yielded the pre-eminence to Zuric: a privilege it enjoys at preſent; being the firſt canton in rank, and the moſt conſiderable in extent both of territory and power next to Bern. In the ſame year Zuric was aſſiſted by the four cantons againſt Albert Duke of Auſtria, who beſieged the town, and was repulſed with great loſs.

Zuric was the firſt town in Switzerland, that ſeparated from the church of Rome; being converted by the arguments of Zuingle. Of all the reformers (the mild and elegant Melancthon alone excepted,) Zuingle ſeems to merit peculiar eſteem: he poſſeſſed, to a great degree, that ſpirit of meekneſs, moderation, and charity, which are the characteriſtics of true Chriſtianity; and amid all the diſputes between the Lutherans and the reformed churches, was a conſtant advocate for peace and reconciliation. He was perfectly free from narrow bigotry which makes no diſtinction between points of the mereſt indifference, and objects of the greateſt importance; as from overbearing pride, which, while it violently condemns the opinions of others, aſſumes infallibility with reſpect to its own. In a word, it was his opinion, that, provided Chriſtians agree in the moſt eſſential articles; they ought meekly to bear with any difference upon ſubjects leſs uncontrovertible, and which do not influence morals.

Ulric Zuingle was born Jan. 1, 1484, at Wildhauſen, a ſmall village in the Tockenburgh; and, in the twentieth year of his age, was appointed miniſter of Glarus. Even before the publication of the ſale of indulgences by Leo X., which was the more immediate cauſe of the reformation, Zuingle expoſed at Glarus ſeveral ſuperſtitions of the church of Rome; and gained additional credit, by preaching at Einſidlin againſt vows, pilgrimages, and offerings. After the publication of the ſale of indulgences, while Luther was undermining the fabric of papal authority in Germany, Zuingle was no leſs ſucceſsful in Switzerland. By his zeal and intrepidity, and by the irreſiſtible force of truth, he gained ſo many converts at Zuric, (where he had been invited to preach,) that in 1524 the magiſtrates aboliſhed the maſs, and other Catholic ceremonies, and introduced the reformed religion. Zuingle had taken ſuch wiſe precautions, and acted with ſuch extreme moderation, that the diſputes between the two ſects were carried on with more temper than is uſual in religious controverſies. The change which had been ſome time in agitation, was finally determined by a plurality of voices in the ſovereign council, and the people readily and cheerfully obeyed the deciſion of their magiſtrates. The example of Zuric was ſoon followed by Bern, Schaffhauſen, Baſle, with part of Glarus and Appenzel; the other cantons continuing to adhere to the religion of their anceſtors. From this period the two perſuaſions have been eſtabliſhed in Switzerland; but that harmony, which had hitherto ſubſiſted between the cantons, has been occaſionally interrupted. In 1531, religious diſputes broke out with ſo much violence and animoſity, as to occaſion a civil war; in which the Proteſtants were defeated, and Zuingle loſt his life, in the forty-eighth year of his age, at the battle of Cappel *. Since that period two other religious wars have been kindled; one in 1656, in which the Catholics gained the advantage; and the other in 1712, when the Proteſtants proved victorious. The peace of Arau, which terminated theſe unhappy diſputes, has, it is to be hoped, finally compoſed all religious animoſities. By that treaty, which may be conſidered as a code of toleration among the Swiſs; the treatment of the Proteſtants and Catholics in the common bailliages is regulated. The firſt article ſtipulates, that in all the

* It has been urged againſt Zuingle, as a proof of his perſecuting principles, that he was perſonally engaged in this war againſt the Catholics. To this it may be anſwered, that he had uſed every argument in his power to reconcile the contending parties; that he even openly arraigned the impatient and turbulent zeal of his fellow-citizens; that he acted in obedience to one of the fundamental laws of the republic; and that he accompanied the army by the expreſs command of the magiſtrates.

provinces

provinces, which are ſubject to cantons of different religion, there ſhall be a perfect equality between the two ſects, and that they ſhall both enjoy the ſame privileges: to which is added an expreſs prohibition to each party, not to uſe any terms of raillery or contempt, in ſpeaking of their reſpective modes of worſhip.

The canton of Zuric abounds in corn, wine, and excellent paſture. The proportion of grain to the other productions of the earth, will appear from the following calculation. There are 217,424† acres in tillage, 14,466 in vines, 94,553 in meadows, 42,549 in paſturage, and 103,778 in foreſt.

As ſufficient corn is not produced for the interior conſumption, the deficiency is chiefly ſupplied from Suabia; and, to prevent a ſcarcity of this material article, a public granary is maintained at the expence of government. The grain is retailed at the common price; but, in ſeaſons of ſcarcity, is ſold conſiderably cheaper than it can be purchaſed at the market. The good effects of this eſtabliſhment appeared at the dearth in 1771; when, on account of the dearneſs of corn, a pound of bread was ſold for ten pence, the ſame quantity was delivered by government for four pence. The wine made in the canton forms an inconſiderable object of foreign commerce; the greateſt part being conſumed in the country. In 1779 were exported 10,029 caſks, each containing 180 bottles; in 1780, 24,568, and in 1781, 11,354.

The canton contained, in 1784, 174,572 ſouls, including 10,500 in the capital. This large population, in proportion to the ſize of the canton, is owing to the trade of Zuric; as at leaſt two-thirds of the inhabitants derive their livelihood by ſpinning thread and ſilk, and making linen for the manufactures of the town.

The ſovereign power reſides excluſively in the burgeſſes of the town, conſiſting of about two thouſand.

Here I cannot but remark, that a narrow ſpirit of policy reigns throughout moſt of the ſtates in Switzerland; as they ſeldom confer the burgherſhip. This rule, however, in ſome of the republics, is leſs ſcrupulouſly obſerved than in others; but in Zuric a new citizen has not been admitted during theſe laſt hundred and fifty years.

It is curious to trace the reſtrictions which have been gradually laid on granting the burgherſhip. On the 26th of May, 1540, the Sovereign Council iſſued a decree, importing that whoſoever was deſirous of becoming a citizen, ſhould be obliged to produce a certificate of good behaviour, properly witneſſed and ſigned, and bearing the ſeal of the magiſtrates of the place in which he formerly reſided; and ſhould, before he was enrolled among the burghers, pay ten florins, near 1*l.*, if a native of Switzerland, and double that ſum if a ſtranger. An inhabitant of the town or canton was taxed only at three florins for his admiſſion; and all artiſts and perſons of learning, neceſſary or uſeful to the ſtate, were to be received gratis. In 1549, it was enacted, that the burgherſhip ſhould be refuſed to all who were not poſſeſſed of conſiderable riches, or who did not introduce new arts and trades. This decree was repeatedly confirmed; and, in 1593, it was added, that a new citizen ſhould not be entitled to a ſhare in the government but on the following conditions: If an inhabitant of the canton, he muſt have reſided in the town during ten years; if a native of Switzerland, twenty; if a foreigner, forty; and he muſt build or purchaſe a houſe within the walls of Zuric: this laſt article was repealed in 1612. In 1597, the reception of new citizens was ſuſpended for the firſt time, but only for two years; and in 1610, the admiſſion-money was augmented.

† Of 36,000 ſquare feet each.

In

In the commencement of the 17th century, government refuſed to receive into the Sovereign Council the noble families of Orel, Peffaluzz, and Muralt, which, in 1555 and 1557, had quitted Italy and ſettled at Zuric: theſe families, partly on account of having embraced the reformed religion, and partly as perſons of capacity and induſtry, had been received into the burgherſhip, but rendered incapable of enjoying a ſhare in the adminiſtration of affairs. This excluſion, again confirmed in 1592, was revoked in 1673, in favour only of the family of Muralt, which exception was obtained by conſiderable largeſſes. In 1674, the family of Orel offered to diſburſe ten thouſand florins towards the expence of repairing the fortifications, on condition of being rendered capable of election into the Sovereign Council: their petition was then refuſed, but generouſly granted in 1679, without the ſmalleſt equivalent. Finally, on the 7th of January, 1661, the Council determined to make no more burghers; which reſolution has been invariably followed.

The burghers, beſide the advantage of electing their magiſtrates, and of aſpiring to the adminiſtration of affairs, enjoy the ſole* right of commerce; all ſtrangers, and even ſubjects, being excluded from eſtabliſhing manufactures in the city, or in any part of the canton.

* The narrow principle of commercial monopoly, which confined trade to the burghers of Zuric, excited a ſpirit of diſaffection among the ſubjects, and particularly the populous diſtricts on the borders of the lake, who overlooked the advantages which they enjoyed from a mild and equitable government in this partial grievance. To the effects of this principle may be attributed the feeble conduct of this canton on the aggreſſion of the French. The magiſtrates foreſaw the deſigns of the French rulers to ſubjugate Switzerland, and were willing to co-operate with Bern in defence of Helvetic independence; but their efforts were defeated by the oppoſition of the borderers of the lake, who inſtituted committees of reform, and ſent deputies to Paris. Hence all the propoſals of government to ſupply the contingent of men for the relief of Bern, were anſwered by counter-propoſals to reform the conſtitution. At length the ſupreme council of Zuric, anxious to conciliate their ſubjects, and apprehenſive of the progreſs of the French arms, made ſome conceſſions, which only ſerved as a pretext for new demands. At each order iſſued by government for a general armament, new privileges were extorted, until the ſupreme council committed the charge of new-modelling the ſtate to a convention of one hundred perſons ſelected from different ranks. This committee drew up articles of a new conſtitution, which were ratified by the councils and the whole body of burghers; and the old magiſtracy was inveſted with the feeble authority of a proviſional government.

But even this innovation did not produce the deſired effect; for when the magiſtracy, in conjunction with the convention, attempted to call forth the contingent of the canton, a ſmall and diſpirited number obeyed the ſummons, and only 1500 men, from a canton whoſe population amounted to 170,000, marched againſt the French. Theſe troops were diſpirited, uncertain how to act, and, diſtracted by the wavering counſels of Bern, did not take the field; but, on the capitulation of Bern, ſurrendered, at Friniſberg, to a body of French troops: two companies were plundered; but the remainder were permitted to continue their march to their capital, with all the honours of war.

A general panic now ſpread among the inhabitants of Zuric; reports prevailed; that on one ſide a corps of French were preparing to invade the canton, and on the other a large body of the ſubjects in a ſtate of inſurrection were marching againſt the capital. A haſty accommodation was arranged between the two parties; the inhabitants took up arms, and prepared to defend the place.

Fortunately theſe reports proved to be fallacious; for a negociation was opened with the inſurgents, who had erected themſelves into an aſſembly of the people, with central and proviſional committees; and after a few conferences an accommodation was effected. A garriſon of 1000 militia was admitted into the town; the proviſional government was diſſolved; a national aſſembly convoked; the magiſtrates depoſited their authority into the hands of the free and ſovereign people; a new proviſional regency was eſtabliſhed; a tree of liberty planted, with the inſcription, "The brethren of the town and country are united;" and a deputation, with the peace-offering of the new conſtitution, was ſent to the French generals, to implore the protection of France, and to requeſt that no foreign troops might enter their territories.

The French generals accepted the ſubmiſſion of Zuric, but inundated the canton with troops. Further alterations were made by the proviſional government; and on the 21ſt of March the national aſſembly acceded to the new organization of the Helvetic conſtitution.

The

The burghers of Zuric are divided into thirteen tribes; one of which is called *Conſtaffel*, or the tribe of nobles, although at preſent not abſolutely confined to perſons of that deſcription: it enjoys the privilege of giving eighteen members to the Sovereign Council, and ſix to the Senate, whereas each of the other tribes only ſupply twelve to the former, and ſix to the latter.

The legiſlative authority is veſted by the burghers in the Sovereign Council of two hundred; conſiſting, however, of two hundred and twelve members drawn from the thirteen tribes, and compriſing the Senate or Little Council. This * Senate, compoſed of fifty members including the two burgomaſters, has juriſdiction in all cauſes civil and criminal: in civil caſes, when the demand is of a certain importance, an appeal lies to the council of two hundred: but in criminal affairs, their ſentence is final, and, when once paſſed, there is no reverſal or mitigation. An excellent maxim! provided the judges are cautious and circumſpect, and the laws mild: for there is no greater encouragement to the commiſſion of crimes, than the frequency of pardons. Such an inſtitution, however, ought neceſſarily to exclude ſeverity of puniſhment; and could never be admitted in a ſtate, where by the letter of the law the ſame puniſhment is inflicted upon a ſheep-ſtealer as upon a parricide.

It is to be regretted, that in this republic, as in moſt other ſtates of Switzerland, there is no preciſe code of criminal law. The Caroline, or code of Charles V. is oſtenſibly followed; but on account of its obſolete uſages and extreme ſeverity, the ſentence is ultimately left to the diſcretion of the magiſtrates. For notwithſtanding the moſt perfect integrity, and upright intentions, yet it is hardly poſſible to ſuppoſe, that party, friendſhip, connections, and family, ſhould not frequently influence the judges and occaſion partial proceedings. It would perhaps well become the wiſdom of this enlightened and equitable government to form a penal code, and to aſcertain with preciſion the puniſhment for each offence. The example of ſuch a republic would in time be followed by the remaining cantons and ſtates of Switzerland; and poſterity would bleſs the name of Zuric for having occaſioned the introduction of more ſettled principles in the criminal courts of Juſtice. Some late deciſions have rendered this arrangement more obviouſly neceſſary. Several perſons diſordered in their underſtandings committed ſuicide; and, although the circumſtances of the crime were nearly ſimilar, yet the moſt oppoſite ſentences were pronounced on theſe occaſions; ſo that the families of thoſe to whom a greater degree of ſeverity was ſhewn, were neceſſarily more diſtreſſed on account of the mildneſs manifeſted to the others.

Every judge of delicacy and honour would undoubtedly experience great ſatisfaction to find himſelf reſtrained by preciſe laws from liſtening to ſolicitations from friends and party, and from being biaſſed by thoſe feelings, of which it is almoſt impoſſible to be diveſted.

The power of the Senate, conſidered in a collective capacity, is very conſiderable: it judges finally in all criminal cauſes, has the care of the police, and ſupplies the principal magiſtrates. But, as too great a power of individuals is dangerous in a republic, the members of this aſſembly are liable to be changed, and a reviſion or confirmation is annually made, in ſome inſtances by the Sovereign Council, in others by the particular tribes to which the ſenators belong. This annual reviſion is a great check to mal-

* Formerly the Senate was ſeparated into two equal diviſions, which alternately adminiſtered the office during ſix months; and although theſe diviſions ſtill continue, yet for ſome time paſt they have reunited and acted together.

adminiſtration, and at the ſame time prevents the Senate from gaining ſo great an influence as to be detrimental to the liberties of the people. A burgher is qualified to vote at twenty; is eligible into the Sovereign Council at thirty; and into the Senate at thirty-five. By theſe wiſe regulations, a man muſt have formed ſome experience in public affairs, before he is capable of holding an important charge. The revenues of government, though not exceeding 65,000*l. per ann.*, are more than proportionate to the expences; which are regulated with the ſtricteſt œconomy. The ſtate is not only without debts, but an annual ſaving is depoſited in the public treaſury, for a reſort upon any ſudden emergency. From this fund government ſupported the whole expence of the war, in 1712, againſt the Catholic cantons, without impoſing any additional tax.

The canton of Zuric is divided into diſtricts or bailliages, which are governed by bailifs nominated by the Sovereign Council. Theſe bailifs, excepting thoſe of Kyburgh and Groningen, cannot paſs capital ſentence, or order torture. They can arreſt and interrogate the delinquent, and puniſh ſmall miſdemeanors by whipping, or baniſhment from the bailliage. In capital caſes they examine, make out the verbal proceſs, and ſend the felon to Zuric for further trial. On enquiring into the ſtate of criminal juriſprudence, I learned with ſatisfaction, that the torture had not been inflicted in the capital for theſe laſt nine years; which may be preſumed to be a prelude to its total abolition; but it is much to be regretted, that whipping, which is a ſpecies of torture, is not unfrequently applied, in order to force confeſſion, both in Zuric and in the bailliages; an abuſe of juſtice repugnant to the wiſdom of ſo enlightened a government.

The city of Zuric ſtands at the northern extremity of the lake, and occupies both ſides of the rapid and tranſparent Limmat. The environs are extremely delightful; an amphitheatre of hills gradually ſloping to the borders of the water, enriched with paſture and vines; dotted with innumerable villas, cottages, and hamlets; and backed on the weſt by the Utliberg, a bold and gloomy ridge ſtretching towards the Albis, and that chain of mountains which riſes gradually to the Alps.

The town is divided into two parts; the old part, ſurrounded with the ſame ancient battlements and towers which exiſted in the thirteenth century, and the ſuburbs which are ſtrengthened by fortifications in the modern ſtyle, but too extenſive. The ditches, inſtead of being filled with ſtagnant water, are moſtly ſupplied with running ſtreams. The public walk is pleaſantly ſituated in a lawn, at the junction of the Limmat and the Sil, an impetuous and turbid torrent, which deſcends from the mountains of Einſidlin: two rows of lime-trees planted by the ſide of the Limmat, and following its ſerpentine direction, afford an agreeable ſhade in the heat of ſummer. The inhabitants are very induſtrious; and carry on with ſucceſs ſeveral manufactures: the principal are thoſe of linens and cottons, muſlins, and ſilk handkerchiefs. The manufacturers do not in general dwell within the walls; but the materials are moſtly prepared, and the work is completed in the adjacent diſtricts. For this reaſon Zuric does not exhibit the activity and numbers of a great commercial city. The environs, on the contrary, are ſo extremely populous, that perhaps few diſtricts in the neighbourhood of a town, whoſe population ſcarcely exceeds ten thouſand inhabitants, contain within ſo ſmall a compaſs ſo many ſouls. The ſtreets are moſtly narrow; the houſes and public buildings accord more with plainneſs and convenience, than with the elegance and ſplendor of a capital.

The town contained, in 1780, 10,559 ſouls, in the following proportions: 2583 male burghers, 3464 female burghers; 860 foreign clerks, 250 foreigners; 372 male inhabitants, 444 female inhabitants; 223 men-ſervants, 1734 maid ſervants; and 629

patients in the hoſpital. The gradual decreaſe of the population in the town, which ariſes from the difficulty of obtaining the bugherſhip, will appear from the following table:

1357.	1756.	1762.	1769.	1780.
12,375	11,102	10,616	10,574	10,559

The increaſe of luxury and opulence will appear from conſidering that, in 1357, the number of men-ſervants amounted to only 84, and of maid ſervants to 263; whereas, in 1780, the former were 223, and the latter 1734; or near a fifth of the whole population.

The manners of the inhabitants are in general ſimple, and may perhaps in theſe times be eſteemed antiquated. Dinner is uſually ſerved at twelve: in the afternoon the gentlemen aſſemble in clubs or ſmall ſocieties, in the town during winter, and at their reſpective villas in ſummer. They frequently ſmoke, and partake of wine, fruit, cakes, and other refreſhments. The women, for the moſt part employed in their domeſtic occupations, or devoted to the improvement of their children, are not fond of viſiting. When they go out, they generally aſſemble in ſeparate coteries, to which only a few men, and thoſe chiefly the neareſt relations, are admitted: many of the ladies indeed, from a conſciouſneſs of their provincial accent, and a difficulty of expreſſing themſelves in French, ſeldom make their appearance when ſtrangers are received. It has more than once happened to me, that on being ſhewn into the apartment wherein the ladies were aſſembled, the maſter of the houſe has taken me by the hand, and led me into another room, where he would have detained me, if I had not requeſted to be reconducted to the ladies. This reſerve begins greatly to abate, and to give place to a more ſociable intercourſe. Such, however, is the prevalence of national habit, that a few families, which form a more agreeable mixture of company, are conſidered as differing from the eſtabliſhed cuſtoms, and are ſtill known by the name of the *French Society*.

Sumptuary laws, as well as thoſe againſt immorality, are well obſerved. The former indeed may exiſt, and be carried into execution even among a people much corrupted; for it may be the policy of government to enforce their obſervance. But the ſevereſt penalties will not be ſufficient to prevent crimes of an immortal tendency, amidſt a general diſſoluteneſs of manners: the popular principles can alone invigorate ſuch laws, and give to them their full operation. Secret crimes cannot be prevented; but it is an evident proof of public virtue, when open breaches of morality are diſcountenanced.

Among their ſumptuary laws, the uſe of a carriage in the town is prohibited to all ſorts of perſons except ſtrangers: and it is almoſt inconceivable that, in a place ſo commercial and wealthy, luxury ſhould ſo little prevail.

The militia of the canton amounted, in 1781, to 25,718 infantry, 1025 artillery, 886 dragoons, and 406 chaſſeurs; in all 28,235 effective men. There is a military cheſt at Zuric, eſtabliſhed in 1683, and ſupported by the members of the great council, who, inſtead of giving an expenſive entertainment, are bound on their election or farther promotion to pay a certain ſum. From this fund, which has been conſiderably augmented, 2000*l.* was taken, in 1770, for the purpoſe of eſtabliſhing a magazine of uniforms and arms, which are either diſtributed, or ſold at a low price to the poor peaſants who cannot afford to purchaſe them at their full value; each peaſant, according to the military laws of the canton, being obliged to poſſeſs his arms and uniform.

The arſenal is well ſupplied with cannon, arms, and ammunition; and contains a reſerve of muſkets for thirty thouſand men. We ſaw there, and admired, the two-handed

handed ſwords and weighty armour of the old Swiſs warriors; as alſo the bow and arrow with which William Tell is ſaid to have ſhot the apple from the head of his ſon.

This canton has a regiment and ſome companies in the ſervice of France, a regiment in that of Holland, and ſome companies in the ſervice of the King of Sardinia. The King of France pays annually for a regiment of fuſiliers, conſiſting of 1292 men, 20,348*l.* The colonel receives about 840*l. per ann.*; a captain 360*l.*; and a common ſoldier 7*l.* The pay of a regiment of twelve companies, in the Dutch ſervice, is 25,377*l.*

LETTER IX.—*Eccleſiaſtical affairs.—State of Literature.—Learned Men of Zuric.—Society of Phyſics.—Seminaries.—Libraries.*

IN eccleſiaſtical affairs the ſenate is ſupreme: the canton is divided into fourteen diſtricts, each governed by a dean, choſen by the ſynod, from three candidates propoſed by the clergy of the dioceſe. The ſynod, compoſed of the whole clergy, and ſeveral aſſeſſors on the part of the Little Council, meets twice a year. In the laſt century it had a more democratical form, and exerciſed juriſdiction over its members: it examined cauſes between eccleſiaſtics, and between the miniſters and their pariſhioners; gave deciſions; enjoyed the power of impriſoning, depoſing and reinſtating the miniſters; and exerciſed an authority dangerous to the ſtate. By degrees their exorbitant prerogatives were annulled; and in 1700 the clergy of Zuric ſucceeded in the eſtabliſhment of a more ariſtocratical form.

The principal miniſters and profeſſors in the town conſtitute, in conjunction with ſeveral magiſtrates and other aſſeſſors deputed by the civil power, an eccleſiaſtical and academical council: to this committee the deans have recourſe in all concerns which ſeem to exceed their juriſdiction: it determines leſſer affairs, and refers caſes of importance to the ſenate.

The fourteen deans aſſemble twice a year in Zuric, and compoſe a *proſynode*; in which they depute one of their own body to deliver their requiſitions, or *pia deſideria*, firſt to the Eccleſiaſtical Council, and afterwards to the general Synod. The Eccleſiaſtical Council takes their requeſts into deliberation, lays them before the Synod, and, if recommended, they are preſented by the aſſeſſors to the final deciſion of the Senate. The eccleſiaſtical benefices in this canton are extremely moderate. The beſt living may be worth 140l. *per ann.*, and the worſt about 30l. The ſalary of the canonries in the capital amounts to 120l. In general, a clergyman in the town, who has merit, is certain of obtaining a profeſſorſhip, which adds 50l. or 60l. *per ann.* to his other appointments.

The charitable eſtabliſhments at Zuric are the orphan-houſe, which is regulated with extreme attention and care; an alms-houſe for poor burghers; an hoſpital for incurables, and that for the ſick of all nations, which uſually contains between ſix and ſeven hundred patients; and the *Allmoſen-Amt*, or foundation for the poor: this excellent inſtitution puts out children as apprentices, and diſtributes money, clothes, and books of devotion to poor perſons, as well in the town as in different parts of the canton, at the recommendation of the reſpective miniſters. In 1697 it diſtributed 300l.; in 1760 5,010l.; in 1770, 4,796l.; and in 1778, 5,451l.

Among the particular inſtitutions muſt not be omitted the chirurgical ſeminary: it is formed by voluntary ſubſcriptions, and chiefly ſupported by Dr. Rhan, an eminent phyſician, who reads lectures gratis, and gives the profits of a publication, called the

Magazine of Health, towards maintaining this ſeminary, for the inſtruction of young phyſicians and ſurgeons, deſtined to ſettle in the country.

At Zuric public education is a concern of ſtate, and under the immediate protection of government. The office of a profeſſor gives rank and eſtimation, and is often held by a member of the Senate and of the Great Council. The principal literary eſtabliſhments for the inſtruction of youth are, the Caroline College for ſtudents in divinity; *Collegium Humanitatis*, or the college for polite literature; and the ſchool of arts: the firſt has twelve profeſſors, the ſecond two, and the laſt ſeven. The learned languages, divinity, natural hiſtory, mathematics, and in ſhort every ſpecies of polite learning, as well as abſtruſe ſcience, is taught at a ſmall expence in theſe reſpective ſeminaries.

In conſequence of the unremitted attention which, ſince the reformation, government has paid to the education of youth, many eminent perſons have flouriſhed in all branches of literature; and there is no town in Switzerland where letters are more encouraged, or where they have been cultivated with greater ſucceſs. A learned profeſſor of Zuric has, in a very intereſting publication, diſplayed the important ſervices which erudition and ſcience have derived from the labours of his countrymen. In theſe biographical memoirs appear, among many others, the names of Zuingle and Bullinger, Conrad Geſner, Hottinger, Simler, Spon, Scheutzer, Heydegger, Breitinger, Bodmer, Hertzel, and Solomon Geſner.

Of all the luminaries which Zuric, fertile in great geniuſes, has ever produced, Conrad Geſner perhaps occupies the firſt place. He was born at Zuric in 1516, and died in 1564, in the 48th year of his age. Thoſe who are converſant with the works of this great ſcholar and naturaliſt, cannot repreſs their wonder and admiration at the amplitude of his knowledge in every ſpecies of erudition, and the variety of his diſcoveries in natural hiſtory, which was his peculiar delight. Their wonder and admiration is ſtill further augmented, when they conſider the groſs ignorance of the age which he helped to enlighten, and the ſcanty ſuccours he poſſeſſed to aid him in thus extending the bounds of knowledge; that he compoſed his works, and made thoſe diſcoveries which would have done honour to the moſt enlightened period, under the complicated evils of poverty, ſickneſs, and domeſtic uneaſineſs. A detail of his life and writings, by an author capable of appreciating his multifarious knowledge, would be a juſt tribute to the merits of this prodigy of learning, (*Monſtrum Eruditionis*,) as he is emphatically ſtiled by Boerhaave.

Bodmer, born in 1698, was alive in 1776, when I firſt viſited Switzerland; but I was at that time ignorant of the German language, and unacquainted with his great merits in reforming the taſte of his contemporaries, and familiarizing them to the ſublime beauties of Homer and Milton. He died in 1783. I now regret that I did not cultivate the acquaintance of a man, whom the unanimous voice of his contemporaries deſervedly ſtyle the Father of German literature; whoſe juſt criticiſms and correct judgment animated the poetical genius of Klopſtock, Haller, and Geſner.

I did not omit waiting upon Solomon Geſner, the celebrated author of the Death of Abel, and of ſeveral idyls, which for their delicate and elegant ſimplicity are juſtly eſteemed. They abound with thoſe nice touches of exquiſite ſenſibility, which diſcover a mind warmed with the fineſt ſentiments; and love is repreſented in the chaſteſt colouring of innocence, virtue, and benevolence. Nor has he confined his ſubjects merely to the paſſion of love: paternal affection, and filial reverence; gratitude, humanity, and every moral duty, is exhibited and inculcated in the moſt pleaſing and affecting manner.

He has for ſome time renounced poetry for the pencil; and painting is at preſent his favourite amuſement. A treatiſe which he has publiſhed on landſcapes diſcovers the

elegance of his taſte, and the verſatility of his genius; while his compoſitions in both kinds prove the reſemblance of the two arts, and that the conceptions of the poet and of the painter are congenial. His drawings in black and white are preferable to his paintings; for although the ideas in both are equally beautiful or ſublime, the colouring is inferior to the deſign. He has publiſhed a handſome edition of his writings in quarto, in which every part of the work is carried on by himſelf: he prints them at his own preſs; and is at once both the drawer and engraver of the plates. It is to be lamented that he has renounced poetry; for, while ordinary writers ſpring up in great plenty, authors of real genius are rare and uncommon. His drawings are ſeen only by a few; but his writings are diſperſed abroad, tranſlated into every language, and will be admired by future ages, as long as there remains a reliſh for true paſtoral ſimplicity, or taſte for original compoſition. He is plain in his manners; open, affable, and obliging in his addreſs; and of ſingular modeſty. Geſner died of an apoplexy, March 2, 1788.

I called alſo on Mr. Lavater, a clergyman of Zuric, and celebrated phyſiognomiſt, who has publiſhed four volumes in quarto on that fanciful ſubject, illuſtrated with appropriate engravings. This work, however, is rather a deſultory collection of obſervations and conjectures, than a regular ſyſtem of phyſiognomy. That particular paſſions have a ſtrong effect upon particular features is evident to the moſt common obſerver; and it may be conceived, that an habitual indulgence of theſe paſſions may poſſibly, in ſome caſes, impreſs a diſtinguiſhing mark on the countenance; but that a certain caſt of features conſtantly denotes certain paſſions; and that by contemplating the countenance, we can infallibly * diſcover alſo the mental qualities, is an hypotheſis liable to ſo many exceptions as renders it impoſſible to eſtabliſh a general and uniform ſyſtem. But Mr. Lavater, like a true enthuſiaſt, carries his theory much farther: for he not only pretends to diſcover the characters and paſſions by the features, complexion, form of the head, turn of the neck †, and motion of the arms; but he alſo draws inferences of the ſame kind even from the hand-writing. Indeed his ſyſtem is founded upon ſuch univerſal principles, that he applies the ſame rules to all animated nature, extending them not only to brutes, but even to inſects. That the temper of a horſe may be diſcovered by his countenance, will not perhaps ſtrike you as abſurd; but did you ever hear before, that any quality could be inferred from the phyſiognomy of a bee, an ant, or a cock-chafer? While I give my opinion thus freely concerning Mr. Lavater's notions, you will readily perceive that I am not one of thoſe who are initiated into the myſteries of his art.

* Mr Lavater, however, modeſtly renounces pretenſions to infallibility in every caſe, though he claims it in many inſtances. This viſionary, but entertaining author, thus cloſes his preface: "At the moment I write this, my progreſs (in the ſcience of phyſiognomy) is ſuch, that if there are ſome phyſiognomies on which I can pronounce no judgment, there are, on the other hand, a great many lines and features, on which I am able to decide, with a conviction of truth and evidence equal to that which I have of my own exiſtence."

This ſinglar and expenſive work was publiſhed both in German and French, under the author's inſpection. Its title in Germau is "Phyſiognomiſche Fragmente zur beforderung der Menſchenkenniſs Menſchenliebe;" in French, "Eſſai ſur la Phyſiognomie deſtiné à faire connoitre l'Homme et à le faire aimer." It has been likewiſe publiſhed in Engliſh, under the title of "An Eſſay on Phyſiognomy, deſigned to promote the Knowledge and Love of Mankind." A cheaper edition, in four volumes octavo, has been recently publiſhed.

† "Being on a viſit to Mr. Zimmerman at Biough," ſays Lavater in his preface, "we ſtepped to the window to notice a military proceſſion, when a face, with which I was wholly unacquainted, ſo forcibly ſtruck me, that I formed a decided judgment on the caſe. Reflection had no ſhare in it, for I did not imagine that what I had ſaid deſerved notice. Mr. Zimmerman immediately aſked me, with ſigns of great ſurpriſe, 'on what do you found your judgment?' I replied, '*on the turn of the neck.*"

Mr.

Mr. Lavater has not merely confined himſelf to phyſiognomy. He has compoſed ſacred hymns and national ſongs, which are much eſteemed for their ſimplicity. He has alſo given to the public numerous works on ſacred ſubjects. I am concerned to add, that the ingenious author extends to religion the ſame enthuſiaſm which he has employed in his reſearches on phyſiognomy, and in his poetical compoſitions: the warmth of his imagination hurries him on to adopt whatever is moſt fanciful and extraordinary; to outſtep the limits of ſober reaſon; to be an advocate for the efficacy of abſolute faith; for inward illuminations; ſupernatural viſions; and the miraculous effects of *animal magnetiſm* in the cure of diſorders. The inſinuating addreſs of Mr. Lavater, the vivacity of his converſation, the amenity of his manners, together with the ſingularity and animation of his ſtyle, have contributed more to diffuſe his ſyſtem and principles, than ſound arguments or deep learning, which are not to be found in his lively but deſultory compoſitions *.

Among the eminent men of Zuric muſt not be omitted Dr. Hirtzel, a learned phyſician, who is deſervedly ſtyled the Swiſs Plutarch; and has, among various publications, more particularly diſtinguiſhed himſelf by the *Socrate Ruſtique*, and by the lives of Sultzer and Heydegger.

Leonhard Meiſter, profeſſor of hiſtory and morality in the School of Arts, deſerves to be mentioned among the learned men of Zuric. The verſatility of his talents will be collected from a bare catalogue of his principal works; which are written in the German tongue:—On Fanaticiſm; the Hiſtory of the German Language and Literature; Lives of the celebrated Men of Zuric; Swiſs Biography; the moſt memorable Events of the Helvetic Hiſtory, in chronological Order; Inſtances of Intolerance and Fanaticiſm in Switzerland; Public Law of Switzerland; Hiſtory of the Town and Canton of Zuric; Panegyric on Bodmer; Excurſions through various Parts of Switzerland; Character of the German Poets, in chronological Order, with their Portraits; Abridgment of Ancient Hiſtory, particularly of the Greeks, with an Introduction on the Fine Arts and polite Literature. In all his writings the judicious author has diſplayed great zeal for the promotion of learning, correctneſs of taſte, liberality of ſentiment, and much hiſtorical and biographical knowledge. But in his obſervations on fanaticiſm and intolerance he has treated thoſe ſubjects in a new light: he has illuſtrated their dreadful effects on government and civil ſociety by hiſtorical events, and in a political view; he has appealed from theory to experience, and exemplified queſtionable arguments by unan-

* It was natural to imagine, from the enthuſiaſm of his character, that Lavater would become an advocate for the ſpecious ſyſtem of French equality. At a diſtance, he hailed the dawn of liberty; but he no ſooner felt its nearer approach, than he became one of its moſt inveterate enemies. He found from experience, that the plauſible terms of emancipation, liberty, and equality, were uſed to ſanction pillage, oppreſſion, and deſpotiſm. While his country was yet ſuffering under the calamities of French brotherhood, he publiſhed his celebrated Philippic againſt the French Directory, which he dated "the firſt year of Helvetic ſlavery." In this animated apoſtrophe, after inveighing againſt the perfidy and deſpotiſm of the French, he pays a due tribute of applauſe to the mild adminiſtration of the ancient republic, the remembrance of which the preſſure of French deſpotiſm rendered more endearing.

"We now imagined that we had accompliſhed all your arbitrary mandates, and that no troops ſhould enter our territories. Vain hope! you came with an armed force, which you quartered upon our citizens and peaſants. You drained our unhappy country; and to crown our humiliation, you impoſed a contribution of three millions of livres upon our ſenatorial families; the families who for ages had conſtitutionally held the reins of government, and held them without any imputation of abuſe or peculation, certainly without extortion; who made no ſtruggle to maintain the excluſive authority our conſtitution had veſted in them, and againſt whom, therefore, you could not allege any well-founded charge. The liberty you conferred on us, in return for all theſe exactions, was the privilege of parting ultimately with our ineſtimable freedom."

ſwerable

ſwerable facts. In this inſtance, he has been no leſs uſeful in combating perſecution, than in repreſſing the ſpirit of fanaticiſm that prevailed among many of his countrymen, and which is diffuſed by men of lively abilities and popular manners *.

The curioſity of the naturaliſt will be amply gratified by a view of the library and cabinet of Mr. John Geſner, profeſſor of phyſics, and canon of the cathedral, who inherits the zeal for natural hiſtory which characterized his great anceſtor Conrad Geſner. His proficiency in the ſtudy of nature, and particularly his accurate ſkill in botany, has been abundantly teſtified by the repeated acknowledgments of Haller, whom he accompanied in his herboriſing excurſions through the mountains of Switzerland, and who confeſſes himſelf indebted to Geſner for various and important diſcoveries. Geſner's cabinet is extremely rich in foſſils, and remarkable for the drawings of the principal ſpecimens of his muſeum; and for numerous repreſentations of inſects admirably painted by Schellenberg. One of the moſt curious parts of his collection, is a great botanical work, which Haller calls *vaſtiſſimum et pulcherrimum opus*; and which, it is much to be regretted, he has hitherto withheld from the public. He has exhibited, in eighty tables, a thouſand generical characters of plants, according to the Linnæan ſyſtem, together with many of the ſpecific characters. Theſe tables, intended to illuſtrate a general hiſtory of plants, which, as appears by his own letters to Haller, the author meditated, were drawn and engraved by Geiſler, the ſame perſon who diſtinguiſhed himſelf by painting the ſhells of Regenfuſs †.

Amidſt the various occupations of Geſner, botany, to which he had an early and ſtrong attachment, has engaged a great ſhare of his attention; beſides two or three early productions in this line, he began, in the year 1759, to publiſh a work which he has extended to eight publications, in the quarto form.

The firſt ſeven parts bear the title of *Phytographia Sacra Generalis*; the remaining, that of *Phytographia Sacra Specialis*. In this work the author treats on philoſophy, of vegetation in general, and on the circulation of the ſap through the particular parts of plants; on the Linnæan ſyſtem againſt the objections of Alſton; on the uſes of plants as food to man, and gives a detail of upwards of a hundred edible kinds, with a compendious account of the ſpecific properties of each; on the medicinal uſes of plants; on the various economical uſes of vegetables, illuſtrating in a particular manner, among many others, thoſe of the palm tree, flax, and aloes. In the latter volumes of this work, the author treats on other advantages derived to mankind from the vegetable world. He ſpeaks, for inſtance, on the nature and conſtituent parts of turf and peat, and enumerates the ſpecies of bog and fen plants, which enter into the compoſition of each; on the kinds of ſhrubs proper for hedges; on timber for building, and particularly ſuch trees as were uſed for thoſe purpoſes by the ancients. In the firſt part, which is all that is hitherto publiſhed, of what he names *Phytographia Sacra Specialis*, he has given an account of thoſe authors who have written on the plants of the holy ſcriptures, and enters upon the hiſtory of each.

The Society of Phyſics owes its origin to Meſſrs. Heydegger, Schultetz, and John Geſner, who firſt aſſembled in 1745, and admitted others, in order to attend a courſe of lectures on natural hiſtory. This courſe was read by Geſner, profeſſor of phyſics, who ſo greatly excited the attention, and animated the zeal of his audience, that in a

* Since the revolution of Switzerland, Profeſſor Meiſter has publiſhed a tract, "Ueber den Gang der Politiſchen Bewengungen in der Schweiz," or, "On the Progreſs of Revolutionary Movements in Switzerland." This work contains many curious particulars concerning the conduct of the Swiſs ſtates, and of Zuric in particular, but muſt be read with caution, as it was plainly written under French influence.

† See Coxe's Travels into Poland, &c. Book VIII. chap. iv.

ſhort

ſhort ſpace of time the members were increaſed to ſeventy. The firſt regular meeting was held in 1745, in a private houſe; and in a few years they deſerved and received the protection of government, which granted the profits of a lottery towards eſtabliſhing a fund. There are now about a hundred and twelve members: each pays on his admittance eight florins, or about ſeventeen ſhillings, and the ſame ſum annually. Since 1757, a ſuite of apartments, in a houſe belonging to one of the tribes, has been aſſigned for holding their aſſemblies, and for containing the library and apparatus.

The Society is divided into five departments: 1. Phyſics. 2. Mathematics. 3. Natural Hiſtory. 4. Medicine. 5. Application of Phyſics to Arts and Trades. But the grand and principal object of the Society, is the encouragement and improvement of practical agriculture. For this purpoſe the members correſpond with the landholders in different parts of the canton; viſit various diſtricts in rotation; ſummon to Zuric ſome of the beſt informed farmers; acquaint them with the ſtate of huſbandry; give them inſtructions; offer prizes for improvements in cultivation; furniſh ſmall ſums of money to the poorer peaſants: and communicate to the public the reſult of their inquiries and obſervations.

The public library at Zuric contains about twenty-five thouſand volumes, and a few curious manuſcripts. Among which, the following principally attracted my attention. 1. The original manuſcript of Quintilian, found in the library of St. Gallen, and from which the firſt edition of that great rhetorician was printed. 2. The pſalms in the Greek tongue, written on parchment dyed of a violet colour. The letters are ſilver, excepting the initials, which are in golden characters, and the marginal references, which are red. It is ſimilar to the celebrated *Codex Argenteus* *, in the library of Upſala. It is ſuppoſed to have once formed part of the *Codex Vaticanus*, preſerved in the Vatican library at Rome: as both theſe manuſcripts are ſimilar, and the Roman volume is deficient in the pſalms. The learned Breitinger has publiſhed a diſſertation on this codex †. 3. Several manuſcripts of Zuingle, which prove the indefatigable induſtry of that celebrated reformer. Among theſe I particularly noticed his Latin commentary on Geneſis and Iſaiah, and a copy of St. Paul's Epiſtles from the Greek Teſtament, publiſhed by Eraſmus. At the end is written an inſcription in the Greek tongue, ſignifying, "Copied by Ulric Zuingle, 1415." It was preſented to the public library by Ann Zuingle, the laſt ſurvivor of his illuſtrious race. 4. Three Latin Letters from Lady Jane Grey to Bullinger, in 1551, 1552, and 1553. Theſe letters, written with her own hand, breathe a ſpirit of the moſt unaffected piety, and prove the extraordinary progreſs which this unfortunate and accompliſhed princeſs, though only in the ſixteenth year of her age, had made in various branches of literature. The Greek and Hebrew quotations ſhew that ſhe was well acquainted with thoſe languages. Theſe letters, though given in ſeveral publications, yet are not printed with that accuracy, which the relics of ſuch a perſonage deſerve. The library is rich in the beſt editions of the claſſics; and particularly in the early impreſſions of the fifteenth century.

The library of the cathedral belonging to the Caroline College, contains ſeveral manuſcripts of the reformers Bullinger, Pelican, Bibliander, and Leon Juda; particularly the tranſlation of the Talmud by Pelican and Bibliander, which has never been printed; alſo ſixty volumes of letters from Zuingle and the early reformers, with a complete index. This collection, ſo intereſting to eccleſiaſtical hiſtory, was formed by Henry Hottinger ‡, the learned author of the hiſtory of the Reformation, renowned for his ex-

* See Travels into Poland, Ruſſia, &c. Book VII. chap. vi.

† De Antiquiſſimo Turicenſis Bibliothecæ Græco Pſalmorum Libro Turici. 1748.

‡ He was born in 1620; and was drowned in the Limmat, 1667.

tenſive

tentive erudition, and particularly for his profound ſkill in oriental literature. The librarian pointed out an antient manuſcript of the Latin Vulgate, called *Codex Carolinus*, and ſuppoſed to have been a preſent from Charlemain, but without foundation; for it is certainly of much later date, probably of the eleventh century. Among the r re books is the Latin Bible, tranſlated by Pelican, Bibliander, and Leon Juda, printed at Zuric in 1545.

The lover of literary and eccleſiaſtical hiſtory will not fail to inſpect the Reverend Mr. Simler's ample collection of Letters, which paſſed between Zuingle and the other reformers of Zuric, and their correſpondents in different parts of Europe. The learned profeſſor propoſed to print by ſubſcription, in two volumes folio, the letters of the Engliſh reformers, ſeveral of which Burnet has publiſhed in his Hiſtory of the Reformation, but with many errors. Not finding, however, ſufficient ſubſcribers for ſo expenſive a work, he was obliged to relinquiſh his plan, to the regret of all lovers of biography.

The library of M. de Heydegger, ſenator of Zuric, deſerves the notice of the learned traveller. The ingenious poſſeſſor inherited from his father only three thouſand volumes, which he has extended to fifteen thouſand. His principal aim is directed to thoſe books that were unknown to Maittaire, which might aſſiſt in correcting his typographical annals, and in forming an accurate and connected hiſtory of printing. In this collection are found many rare and elegant impreſſions by the Aldueſes, Juntas, Giolitos, Torzentino, Stephens, Elzevirs, Comino, Tonſon, Wetſtein, Baſkerville, Bodoni, Barbot, and Didot. It is particularly rich in the earlieſt impreſſions, of which there are no leſs than ſeven hundred printed in the fifteenth century *.

LETTER X.—*Expedition along the borders of the Lake of Zuric.—Rychterſchwyl.—Iſle of Ufnau.—Rapperſchwyl.—Grunengen.—Uſtar.—Greiffenſee.—Excurſion to Regenſberg, and to the ſummit of the Lagerberg.*

DURING my firſt tour through Switzerland, I paſſed too ſhort a time at Zuric to have an opportunity of viſiting the delightful environs, which, for mild beauties of nature, numerous population, and well-being of the peaſantry, is ſcarcely ſurpaſſed by any ſpot on the globe. Having, on ſubſequent occaſions, reſided longer at Zuric, I did not omit making ſeveral excurſions into various parts of the canton; an account of which will form the ſubject of the preſent letter.

The weather clearing up after ſeveral continued and heavy rains, on the 24th of June, 1785, I accompanied M. de Bonſtet of Bern, Profeſſor Meiſter, and ſome other gentlemen of Zuric, in a delightful tour round the lake. We had no need of guides, as the country was well known to my companions, and we had no incumbrance of baggage. Having made an early dinner, according to the cuſtom of the place, we departed at mid-day; walked about three miles, through vineyards and corn-fields, to

* Among many rare books, I noted down the following: Ciceronis Officia. Fuſt et Scheiffer 1465. pet. in folio.—Jo. Januenſis Catholicon, folio. Aug. Vin. del. Gunther, Zeiner et Reutlingen, 1649.—Firſt edition of Petrarcha Venet. Vindel de Spira, 1470. See Cat. de la Valliere, 1783. No. 3579.—Firſt edition of Dante, C. Fulginei Neumeiſter 1472. See la Valliere, No. 3558.—Boccacio Genealogia Deorum et liber de Montibus et Sylvis. Venet. Vindel: de Spira, 1472 and 1473. Firſt edition.—De Claris Mulieribus. Ulma Sv. Zeiner, 1473. Firſt edition, with wooden cuts, very ſingular. See Catalogue de la Valliere, No. 3810 and 3609.—Boccacio Decamerone Venet. Gio. et Gregor. de Gregorii fratelli, 1472, folio, wooden cuts. The Decameron tranſlated into German about 1475, folio.—Mamontreclus Heronæ p. Helian Heliæ, 1470, folio This book was printed at Munſter, in the canton of Lucerne, and is curious, becauſe it is the firſt inſtance of typography in Switzerland.

Kuſſnach, a ſmall village on the eaſt ſide of the lake, where we paid a viſit to a gentleman, and were ſerved with tea, ſlices of bread and butter, and cherries.

In 1778, Kuſſnach was conſiderably damaged by the riſe of a ſmall torrent, which ruſhed down the mountains, carried away twenty-five houſes, and deſtroyed about ſixty perſons. This torrent, now only a little rill, ſwelled to ſuch a degree, as to riſe at leaſt thirty feet above its uſual level; an increaſe owing to the ſudden melting of the ſnow on the neighbouring heights. Every aſſiſtance was inſtantly afforded to the wretched inhabitants, and a collection of £3000 raiſed in one Sunday at the different churches of Zuric: an aſtoniſhing collection for a town which does not contain 11,000 ſouls.

I am indebted to Profeſſor Meiſter for ſeveral obſervations * on the population, induſtry, and productions of Kuſſnach, and the neighbouring villages.

Having repoſed ourſelves about an hour at Kuſſnach, we continued our walk through vineyards and corn-fields, ſometimes on the ſloping banks of the lake, ſometimes on a ſmall foot path formed on terraces upon a level with the water; or along narrow roads that reſemble gravel walks winding through pleaſure-grounds and parks in England. We enjoyed, during great part of the way, the moſt agreeable ſhade from large beech and oak, walnut and other fruit-trees, that overhang like weeping willows; many of which are planted almoſt horizontally, either ſtretching from the ſides of the hill, or from the margin of the water, their boughs dipping into the lake: the ſcattered cottages, the numerous villages, the picturesque villas placed on the banks, and ſeveral neat churches, added to the beauty of the ever-changing ſcenery.

Having continued our walk about three miles, we ſtopped at a peaſant's houſe in Meile, who regaled us with our uſual fare, milk and cherries, but would receive no recompenſe. Here we embarked and croſſed the lake, enjoying a moſt agreeable view of each border ſtudded with villas, churches, and villages, half concealed by the intervening trees. As we paſſed near a bold promontory, richly covered with wood, we obſerved the ſun, which was hid under a cloud, gilding the diſtant town of Rap-

* Kuſſnach contains about 1700 ſouls, and the neighbouring villages are no leſs peopled: this aſtoniſhing population in ſo ſmall a compaſs is occaſioned by the trade of the capital, which employs many hands. The proportion between the produce of the ſoil, and the profits derived from working for the manufactures, may be eſtimated from the following calculation: five pariſhes and two villages, ſituated near the lakes of Zuric and Greiffen, contain 8498 ſouls; and comprehend only 6050 acres of arable land, 698 of vines, and 3407 of paſture, or ſcarcely an acre and a quarter for each perſon. Their ſubſiſtence is principally ſupplied by 2016 looms, by means of which they prepare ſilk and cotton for the merchants of Zuric. In theſe parts an acre is ſold for £100 or £120; whereas the ſame quantity in the interior part of the canton is worth only £20, or £30. The acre here mentioned contains from 32,000 to 36,000 ſquare feet.

In ſixteen pariſhes, ſituated on the borders of the lake, the number of inhabitants, in 1784, were 32,581. There were 271 marriages, 1135 births. The proportion of the marriages to the births, as 1000 to 4188; of the births to the deaths, as 1000 to 882; of the births to the living, as 1000 to 18,705; of the deaths to the living, as 2000 to 32,515; of the males to the females, as 1000 to 1097.

I have already obſerved in the note (p. 663.), that theſe borderers of the lake were the firſt to adopt the French principles, and had a chief ſhare in promoting the ſubjection of the canton.

During the effervescence of the revolution their grievances were exaggerated, and they were compared with the African ſlaves in the Weſt Indies. They were certainly excluded by the commercial government of Zuric from ſome rights, which they ought to have enjoyed; but their condition upon the whole was extremely eaſy and comfortable, as ſufficiently appeared from the flouriſhing ſtate of the country. Even General Schawembourg, as he ſailed up the lake, and obſerved the borders, luxuriant in cultivation and induſtry, and with every mark of proſperity, could not avoid exclaiming, "Il eſt cependant difficile de retrouver ici les traces du deſpotiſme."

In fact, theſe borderers had no ſooner effected a change in the conſtitution, and obtained poſſeſſion of power, than they wiſhed to retain it; and, attempting to reſiſt the aggreſſion of the French, they were diſarmed, pillaged, and fined.

perſchwyl, the hills towards Zuric ſilvered by a milder ray, and the ſublime mountains of Glarus riſing in gloomy majeſty from the ſouthern extremity of the lake.

We landed at Weddenſchweil, which is agreeably ſituated on the weſt ſide of the lake. It is the capital of a baillage, that ſtretches to the limits of the cantons of Zug and Schweitz, and was formerly an independant lordſhip. In 1287 it was ſold by Rodolph of Weddenſchweil to the knights of Jeruſalem; and became a commandery until 1459, when Zuric purchaſed it from the maſter of that order for 20,000 florins. The inhabitants, having revolted in 1466, were deprived of ſeveral privileges, and particularly the criminal juriſdiction, which was transferred to the ſenate of Zuric. Notwithſtanding the loſs of theſe immunities, the mildneſs of government is ſufficiently manifeſted, by the conſiderable increaſe of the population within this laſt century; the number of ſouls, which in 1678 conſiſted of only 4867, amounted in 1782 to 8188.

Near Weddenſchweil, a beautiful meadow, ſkirted with wood, and fertilized by a lively ſtream, tempted us to quit the road, and we had ſcarcely proceeded fifty paces before we ſaw a ſilver rill guſhing from the crevice of a rock fringed with wood. While we where contemplating this pleaſing landſcape, we heard the noiſe of falling waters, and caught a glimpſe of a torrent tumbling from an elevated rock, gliſtening through the dark foliage, and richly illumined by the rays of the ſun, which was concealed from our view. Having penetrated by the ſide of the torrent, we ſaw it burſting from the height, amid ſurrounding trees, fall about ſix feet upon a ridge, and then roll fifty feet in mid air. The effect was peculiarly ſtriking. Nor could we ſufficiently admire the amphitheatre of rock, the beeches ſuſpended on its top and ſides, the beams of the ſun darting on the falling waters, and the noiſe of the torrent contraſted with the mild and tranquil beauties of the lake.

Our walk to Richliſwick, where we paſſed the night, was no leſs agreeable than that on the other ſide of the lake. The road ran ſometimes through meadows, at a little diſtance from the lake, ſometimes cloſe to the water, under the ſhade of trees ſcattered by the hand of nature, in the moſt capricious ſhapes: we ſcarcely advanced a hundred ſteps without paſſing a neat cottage, and meeting with peaſants, who ſaluted us as we went along; every ſpot of ground is highly cultivated, and bore the appearance of induſtry and plenty.

At Richliſwick, which, like Weddenſchweil, contains many good houſes of ſtone, plaiſtered and white-waſhed, ornamented with green window-ſhutters, and Venetian blinds, we found an inn with comfortable accommodations. This place is the paſſage of much merchandize to different parts on the ſhores of the lake, and is greatly reſorted to by the pilgrims, in their way to Einſidlin *.

Early the next morning we embarked for the iſle of Ufnau. The weather was uncommonly fine, the lake quite ſtill, the reflection of the white houſes quivered on the ſurface of the water; the hollows of the diſtant mountains ſeemed to be filled with a tranſparent vapour, which induced me to cry out, in the language of poetry,

*. Theſe once happy diſtricts on both ſides of the lake of Zuric, after an undiſturbed tranquillity of three hundred years, became, in May 1798, the ſcene of devaſtation and carnage, in the unequal conflict between the French and the Swiſs peaſants of the ſmall cantons, who roſe to defend their liberties, and, after entering Lucerne, marched in two bodies on each ſide of the lake, to drive the French from Zuric. After an obſtinate reſiſtance againſt ſuperior forces, the corps on the north ſide of the lake were defeated with great ſlaughter, and Rapperſchwyl ſtormed and pillaged. Five thouſand Swiſs, ſtationed near Richterſchwyl, repulſed the French at the firſt onſet, but with the aid of artillery were at length overpowered. Their ſpirited reſiſtance even extorted the applauſe of the French commander.

" Pleaſant the ſun,
" When firſt on this delightful land he ſpreads
" His orient beams, on herb, tree, fruit and flower,
" Gliſt'ring with dew *."

About a mile from Richliſwick is a ſingle houſe ſtanding on a gentle acclivity, the walls of which divide the canton of Zuric from that of Schweitz, and at the ſame time ſet inſtant bounds to that induſtry and population which had attracted our wonder and delight.

In two hours we landed at Ufnau, which is about an Engliſh mile in circumference and belongs to the abbey of Einſidlin. It contains only a ſingle houſe, inhabited by a peaſant's family, two barns, a kind of tower ſummer-houſe, ſeated on the higheſt point, a chapel never uſed, and a church in which maſs is ſaid only twice in the year. Within is the tomb of St. Alderic, who built an hermitage on the iſland, to which he retired. He died in 1473, and was highly revered for his ſuppoſed ſanctity; as a Latin inſcription informs us, that " he was fed with bread from heaven, and walked upon the ſurface of the waters." This iſland is ſometimes called Hutten's Iſland, in memory of that extraordinary perſon, who retired and died in this obſcure ſpot.

Hutten, deſcended from an illuſtrious family, was born at Seckenberg in Franconia, and receiving an education ſuitable to his birth, proſecuted his ſtudies with that impetuous zeal which was the leading mark of his character. He paſſed a life of almoſt unparalleled viciſſitude; ſometimes in the camp, ſignalized for perſonal courage: in univerſities, where he diſtinguiſhed himſelf by various publications; in courts, received with reſpect, or driven away for inſolence; and wandering over different parts of Europe in extreme indigence. Having, at an early period of his life, embraced the opinions of Luther, he uſed both his pen and his ſword in defence of the new doctrines; was ſo intemperate in his ardour, that he was frequently impriſoned, and alarmed even the daring ſpirit of Luther by his repeated outrages. After rendering himſelf an object of terror both to Lutherans and Catholics, he in vain ſought repoſe until he found it in this ſequeſtered iſland. He expired in 1523, in the 36th year of his age: a man as remarkable for genius and learning, as for turbulence and preſumption.

The iſland is agreeably broken into hill and dale, is extremely fertile in paſture, produces hemp, flax, a few vines, and a ſmall tufted wood, which overhangs the margin of the water. It is the only iſland in the lake of Zuric, except an uninhabited rock, which yields a ſmall quantity of hay.

Having re-imbarked, we ſoon landed at Rapperſchwyl †, and continued aſcending amid hanging encloſures of paſture and corn, commanding a fine view of the lake, hills, mountains, and Alps. Paſſing the little territory belonging to Rapperſchwyl, we came into the canton of Zuric, and entering a neat cottage, to enquire the road, we ſaw a peaſant teaching about thirty children to read and write. On expreſſing my ſatisfaction, I was informed that each village has a peaſant ſchoolmaſter, either entirely or partly paid by government; and that in this canton there is ſcarcely a child who is not inſtructed in reading and writing. A little further we entered another cottage, where the miſtreſs of the houſe offered us milk and cherries, and placed upon the table nine or ten large ſilver ſpoons.

We continued our walk through an encloſed, hilly, and well-wooded country, and arrived about mid-day at Grunengen, a ſmall burgh, capital of the bailliage. After dinner we paid a viſit to the bailif, who reſides in the caſtle, which ſtands on an elevated

* Milton's Paradiſe Loſt.

† See Letter 7.

rock,

rock, overlooking an extenſive proſpect; towards the ſouth wild and romantic, towards the weſt rich and well cultivated, and watered by a lively ſtream which flows from the lake of Pfeffikon.

The bailif poſſeſſes conſiderable authority. He judges civil and criminal affairs, in the preſence of certain jurymen and the under-bailif; but can paſs ſentence without their concurrence, as neither of them enjoys a vote. He can puniſh all crimes which are not capital; can order whipping, or even the torture, to be inflicted, when the criminal is convicted, and will not confeſs; and I was greatly ſhocked to find that this horrid expedient had been lately practiſed. Even in capital caſes he can condemn to death, provided he ſummons eighty jurymen from the different diſtricts to be preſent at the trial; but as this cuſtom is attended with much expence, he uſually ſends the culprit to Zuric; in civil proceedings an appeal lies from his deciſion to the ſenate of Zuric.

If the bailif abuſes his power, the ſenate readily liſtens to the complaints of the oppreſſed, and would not fail to puniſh the unjuſt judge. An inſtance of this impartiality occurred in 1754, when the bailif was proved guilty of extortions, and, though ſon-in-law to the burgomaſter, was fined and baniſhed from Switzerland. I learned this fact, on obſerving a vacant place in the ſeries of arms belonging to the ſeveral bailifs, which are painted in the hall of the caſtle; thoſe of the extortioner, which once filled this vacant place, had been eraſed by order of government. From Grunengen we purſued our courſe through lanes, fields, and enclofures along a moſt delightful country, abounding in vines, corn, paſture, and wood. As the ſetting ſun gradually deſcended below the horizon, we frequently looked back upon the diſtant Alps, the lower parts were duſky and gloomy, and the ſummits,

"Arrayed with reflected purple and gold,
"And colours dipt in heav'n *."

At the cloſe of the evening I arrived at Uſtar; regretting that our day's journey was concluded, and not feeling in the leaſt fatigued with a walk of eighteen miles, from Rapperſchwyl to Uſtar; ſo greatly was I delighted with the beauties of this romantic country. Uſtar is a large pariſh, containing 3000 ſouls; the wooden cottages are neat and commodious, reſembling thoſe in the canton of Appenzel, and are diſperſed in the ſame manner over hills and dales.

The ſun had ſcarcely riſen before we quitted our beds, and walked to the caſtle of Uſtar; it ſtands boldly on elevated rock, planted to its very ſummit with vines, and commands a moſt extenſive view, bounded by the Jura, the mountains of the Black Foreſt, and the chain of Alps ſtretching from the canton of Appenzel to the confines of the Vallais. Below and around, the country reſembled the moſt cultivated and enclofed parts of England; a ſmall lively ſtream winded through an immenſe plain; while the lake of Creiffen appeared like a broad river, waſhing the bottom of the adjacent hills.

This caſtle was formerly a ſtrong fortreſs, and the reſidence of the counts of Uſtar, who held it and the diſtrict as a fief from the counts of Ravenſpurgh; and on the extinction of that houſe, in the middle of the fourteenth century, it was transferred to the family of de Bonſtet; was purchaſed, in 1552, by Zuric, and united to the baillage of Greiffenſee. M. de Bonſtet, whom I have mentioned as one of our party, derived great ſatisfaction in tracing the antiquity and hiſtory of this ſeat, formerly poſſeſſed by

* Milton.

his

his anceſtors, and in obſerving the family arms painted upon the glaſs windows. This caſtle is now a private gentleman's houſe, and belongs to M. Teyler of Weddenſchweil.

From Uſtar we croſſed the fields, and arrived at the lake of Greiffen. We walked for ſome way on a belt of turf, along its borders, under the pendulous branches of oak, beach, and elms. This lake is about ſix miles long and a mile broad; on one ſide the ſhores are flat or gently riſing, on the other ſide hills richly wooded. The dearth of cottages and inhabitants, in this delightful but ſolitary ſpot, formed a ſtriking contraſt with the numerous villages we had recently quitted; while the ſouthern extremity of the lake ſeemed almoſt bounded by that magnificent chain of alps, which conſtantly engaged our attention.

Having embarked in a ſmall boat, we paſſed the village of Greiffen, pleaſingly ſituated on a ſmall promontory emboſomed in a wood, and landed at the northern extremity of the lake. Here I bathed, and walked on gently, aſcending through fertile grounds, delightfully planted with oak, beech, and poplars, and innumerable fruit-trees. At a ſmall village we ſtopped at the parſonage. You can ſcarcely form to yourſelf an adequate idea of the neatneſs and ſimplicity which reign in theſe parts. The clergyman's two daughters, about fifteen or ſixteen years of age, neatly dreſſed, with ſtraw hats, like the peaſant girls of the country, politely brought milk and cherries for our refreſhment. From this retreat of innocence and ſimplicity we aſcended about a mile, then burſt upon a charming view of Zuric, the lake and environs; and gently deſcending, arrived at Zuric, quite enchanted with this ſhort expedition.

An expedition to the ſummit of the Lagerberg was no leſs agreeable than the former excurſion. I procured a guide and a horſe; but the weather proving fine, I gave the horſe to my ſervant, and preferred walking acroſs the corn fields, and meadows tufted with thickets, and enlivened by the numerous labourers employed in the harveſt. In theſe parts as well as the neighbouring diſtricts, I obſerved with pleaſure, that the oxen, which were not yoked to the teams or ploughs, but harneſſed like horſes, performed their labour with much more eaſe, and with greater effect. This cuſtom has been lately introduced into ſome parts of England; and all unprejudiced farmers allow its ſuperior advantage; as the yoke is extremely galling, and four oxen harneſſed with collars will do as much work as ſix when yoked by the neck.

A few miles from Zuric, I paſſed through the village of Affholteren, near the church, which is prettily ſituated in the middle of a large field; ſkirted the ſmall lake Kaſten, at a little diſtance from the picturesque ruins of Old Regenſberg, and gently aſcended to New Regenſberg, which ſtands on an elevation, at the foot of the Lagerberg.

The counts of Regenſberg were powerful barons during that period of anarchy and confuſion which diſtinguiſhed the twelfth and thirteenth centuries; they were involved in conſtant wars, or rather deſultory ſkirmiſhes, with the town of Zuric, until they were finally repulſed by Rodolph of Hapſburg, then captain-general of the troops of Zuric. On the extinction of the counts of Regenſberg, in the fourteenth century, their territory devolved to the Houſe of Auſtria, and in 1409 became ſubject to Zuric.

The preſent burgh contains about 200 inhabitants, who enjoy conſiderable privileges: a burgomaſter, and a council of ſix members, form the civil court of juſtice, from whoſe deciſion an appeal lies to Zuric; the criminal juriſdiction belongs to the bailif, who reſides in the caſtle. This building was formerly of great ſtrength, and frequently defied the attacks of Zuric. The greater part of the preſent edifice was conſtructed in the laſt century; the only remains of the ancient fortreſs being ſome ſtone walls,

and

and a round tower, which commands a diſtant proſpect. A well in the middle of the burgh, hollowed in the rock to the depth of 216 feet, but now dry, furniſhed the garriſon with water during the obſtinate ſieges maintained before the invention of gunpowder. Near this well is a copious fountain, ſupplied from a ſpring that riſes in the Lagerberg. The adjacent country is a moſt delightful intermixture of hill and dale. The rock on which Regenſberg is built, terminates in an abrupt precipice, and forms the eaſtern extremity of that vaſt chain of mountains known by the general name of Jura, the branches of which are diſtinguiſhed by different appellations. The branch that riſes from this point is called the *Lagerberg*, to the ſummit of which I mounted on horſeback. I paſſed for ſome way through cultivated encloſures, and afterwards through foreſts of pine, fir, and beech, until I reached the higheſt point, on which ſtands a ſignal houſe. From this point, which overlooks the whole country, I enjoyed one of the moſt extenſive and uninterrupted proſpects, particularly the fineſt diſtant view of the Alps, which I had yet ſeen in Switzerland.

To the north, the eye expatiates freely over the wilds of the Black Foreſt; to the eaſt, beyond the confines of Bavaria; towards the weſt, traces the branches of the Jura extending in multifarious directions; to the ſouth, looks down upon the fertile and encloſed regions in the canton of Zuric, on the lake and its populous banks, and admires the vaſt expanſe of country ſwelling from plains to acclivities, from acclivities to hills, from hills to mountains, and terminating in thoſe ſtupendous Alps,

"Whoſe heads touch heaven."

This wonderful and ſublime proſpect detained me inſenſibly till the cloſe of the evening, when I deſcended through the dark foreſts that clothe theſides of the Lagerberg; and, filled with thoſe pleaſing but melancholy reflections which the indeſcribable beauties of nature leave upon the mind, rode ſlowly on, and did not arrive at Zuric till the gloom of night had overſpread the horizon.

LETTER XI.—*Winterthur.—Caſtle of Kyburg.*

WINTERTHUR ſtands about twelve miles from Zuric; a town which, although ſituated in the canton, and under the protection of Zuric, yet retains its own laws, has its own magiſtrates, and is in a great meaſure independent. Winterthur was formerly governed by its own counts, who were probably a branch of the Kyburg family, for both houſes bore the ſame arms. In the fourteenth century it was poſſeſſed by Hartman, count of Kyburg, who firſt ſurrounded it with walls; and upon his death devolved to his nephew Rodolph of Hapſburg. Rodolph, afterwards emperor, conferred upon the inhabitants conſiderable privileges, for aſſiſting him in the war in which he was engaged with Ottocar, King of Bohemia. It continued ſubject to his deſcendants until 1424, when the inhabitants claimed the protection, and obtained the alliance, of Zuric. In 1467, the Archduke Sigiſmund having ſold his rights to Zuric, that canton ſucceeded to his prerogatives. A deputy from Zuric reſides at Winterthur, but for no other purpoſe than collecting the toll, half of which belongs to Zuric.

The government is ariſtocratical; the ſupreme power, in all things not interfering with the claims of Zuric, reſides in the Great and Little Council. Theſe two tribunals united are final judges in criminal procedures, and paſs ſentence of death without appeal. The Little Council is inveſted with the general adminiſtration of affairs, and determines civil cauſes in the firſt reſort; from their deciſion an appeal lies to the Great

Great Council, and in all proceſſes between a ſtranger and a burgher, to the ſenate of Zuric.

Although the town is conſidered as independent, and only under the protection of the canton, yet Zuric claims the right of reſtricting the inhabitants from manufacturing ſilk, and from eſtabliſhing a printing-preſs, as interfering with the natives of Zuric. This claim has occaſioned great diſcontents, and giving riſe to much litigation: and though Zuric does not prohibit the manufacture of ſilk, yet by forbidding the peaſants of the canton from preparing and ſpinning the materials, this order amounts to a virtual prohibition. A ſimilar diſpute is in agitation concerning the eſtabliſhment of a printing-preſs at Winterthur. The right will ſcarcely be controverted; but as the cauſe will be finally determined by Zuric, it remains a doubt whether that government will be ſufficiently diſintereſted to decide in favour of Winterthur againſt its own burger.

In all other reſpects, excepting in theſe two articles of trade ſo profitable to Zuric, the commerce of Winterthur lies under no reſtraint. The principle manufactures are muſlins, printed cottons, and cloth; ſome vitriol works are carried on with conſiderable ſucceſs.

The town is ſmall and the inhabitants, who amount to about two thouſand, are for the moſt part remarkably induſtrious. The ſchools in this petty ſtate are well endowed and regulated. The public library contains a ſmall collection of books, and a great number of Roman coins and medals, chiefly found at Ober-Winterthur; among the moſt rare I obſerved a Didius Julianus and a Pertinax. Ober-Winterthur, or Upper Winterthur, at preſent only a ſmall village near the town, in the high road leading to Frauenfield, is the ſite of the ancient *Vitodurum*, a Roman ſtation, and the moſt conſiderable place in this neighbourhood. It exhibits no other remains of former conſequence, but the foundations of ancient walls, and the numerous Roman coins and medals which are continually diſcovered. The Roman way, which once traverſed the marſhes between Winterthur and Fruenfield, is no longer viſible, becauſe it forms the foundation of the preſent high road *.

The caſtle of Kyburg, towering on the ſummit of an eminence overlooking Winterthur, is a pictureſque object, remarkable in the hiſtory of this country, during the times of confuſion which preceded and followed the interregnum of the empire.

In the beginning of the twelfth century, the counts of Kyburg poſſeſſed the counties of Kyburg, Lentzburgh, and Baden; and their territories were further increaſed by the acceſſion of Burgdorf and Thun, which fell to Ulric † in right of his wife Anne, ſiſter and heir of Berchtold V. Duke of Zæringen. Theſe domains devolving, in 1273, to Rodolph Count of Hapſburg, on the death of his uncle Hartman the elder, the laſt Count of Kyburg, rendered him one of the moſt powerful princes in theſe parts, and probably opened his way to the imperial throne. Before his deceaſe, the Emperor ceded to his ſon Rodolph the county of Kyburg, and his other dominions in Switzerland; and, on his demiſe, confirmed this grant to his grandſon John, the ſame who aſſaſſinated his uncle, the emperor Albert ‡, and was called the Parricide.

Upon the death of Albert, his ſons ſeized and kept poſſeſſion of Kyburg, and the other hereditary domains in Switzerland, and tranſmitted them to their poſterity. In

* Winterthur is now incorporated in the canton or department of Zuric.

† Some authors aſſert that Werner, ſon of Ulric, was the huſband of Anne. Great confuſion reigned in the early hiſtory of the counts of Kyburg, until Fueſsli cleared it up. See article Kyburg in Fueſsli's Erbeſchreibung.

‡ See Letter 14.

1424, the Emperor Sigiſmund put under the ban of the Emperor Frederic Duke of Auſtria, and granted for a ſum of money the county of Kyburg to Zuric. In 1442 it was reſtored to the Houſe of Auſtria, but, in 1452, finally ceded to Zuric by Sigiſmund, Archduke of Auſtria, to liquidate a debt which he owed to the canton. From that time it has formed a bailliage in the canton of Zuric; but the title of Count of Kyburg has been always uſed by the Houſe of Auſtria, and is ſtill retained by its preſent illuſtrious deſcendant Joſeph the Second.

The caſtle of Kyburg, which ſtands in a romantic and wild ſituation, has been conſtructed at different periods. Part is ancient, and not improbably the ſame as exiſted in the time of Rodolph; although I could not diſcover a date anterior to 1424, the year in which it was granted to Zuric. In an apartment which was formerly a ſtable, are the portraits of all the bailifs who have reſided in the caſtle from the time of its ceſſion. The bailif enjoys greater powers than are uſually delegated by any ariſtocratical government; in criminal proceedings, he is only required to conſult the jury of the diſtrict, though he is not bound by their opinion, and can even inflict capital puniſhment without the neceſſity of referring the ſentence to be confirmed by Zuric.

LETTER XII.—*Frauenfield.—Of the Helvetic Confederacy.—Diets.*

FROM Winterthur I paſſed to Frauenfield, a ſmall town, or rather village, the capital of Thurgau *, containing ſcarcely a thouſand inhabitants; and only remarkable as the place where, ſince 1712, the deputies of the Swiſs cantons aſſemble at the general diet.

This confederacy owes its origin to the treaty contracted between Uri, Scheweitz, and Underwalden, at the memorable revolution of 1308 †. The ſubſequent acceſſion of Zuric, Bern, Lucerne, Zug, and Glarus, gave ſtrength and ſolidity to the union, and a century and a half elapſed before a new member was admitted. At length, in 1501, Friburgh and Soleure being, after much difficulty, received into the league; upon that occaſion the eight ancient cantons entered into a covenant, called the *Convention of Stantz*, by which the articles of union and mutual protection were finally ſettled ‡.

No change was effected by the ſubſequent reception of the three remaining cantons, Baſle, Schauffhauſen, and Appenzel; as they ſubſcribed to the ſame terms which Friburgh and Soleure had accepted. Without entering, however, into a minute detail, I ſhall endeavour in this letter, to lay before you a ſhort view of the Helvetic confederacy.

The code of public law between the combined republics of Switzerland, is founded upon the treaty of § Sempach 1393; upon the convention of Stantz; and upon the treaty

* Thurgau was a bailliage ſubject to the eight ancient cantons. In the beginning of February the people in ſome parts of the country roſe, elected deputies, and demanded their emancipation, which ſeems to have been granted to the inner diſtrict on the 5th. The people, however, were in general much incenſed againſt the French, and their troops were marching to the aſſiſtance of Bern, when the capture was announced.

In the new diviſion of Switzerland, Thurgau was formed into a canton, of which Frauenfield is the capital.

† See Letter 25. ‡ See Letter 26.

§ This treaty, which regulates the articles of war, was contracted between the eight ancient cantons, in conjunction with the republic of Soleure. It ordains that no Swiſs ſoldier ſhall quit his ranks in time of

treaty of peace concluded in 1712, at Arau, between the Proteſtant and Catholic cantons. It appears from theſe ſeveral treaties, which include or enlarge thoſe that preceded, that the Helvetic union is a perpetual *defenſive* alliance between the thirteen independent contracting powers, to protect each other by their united forces againſt all foreign enemies. Accordingly, if any member of the union ſhould be attacked, that particular canton has a right to demand ſuccours from the * whole confederate body; and in caſe of war the ſeveral forces to be ſupplied by each canton are preciſely ſpecified. It appears, however, from the ſtipulations to which the five cantons agreed that they do not, in every reſpect, enjoy equal prerogatives with the eight ancient cantons, which reſerved to themſelves a right, if the queſtion for declaring war againſt any foreign ſtate ſhould be *unanimouſly* carried in their aſſembly, to require the aſſiſtance of the five other cantons, without aſſigning the motive. But the five cantons cannot commence hoſtilities without the conſent of the confederates; and ſhould the enemy be willing to enter into a negociation, the diſpute muſt be referred to the arbitration of the eight ancient cantons. It is further ſtipulated, that, in caſe of a rupture between the eight cantons, the five muſt obſerve a ſtrict neutrality.

The next eſſential object of the league is to preſerve general peace and good order. It is therefore covenanted, that all public diſcuſſions ſhall be finally ſettled between the contending parties in an amicable manner; and for this purpoſe particular judges and arbiters are appointed; who ſhall be empowered to compoſe the diſſentions that may happen to ariſe. To this is added a reciprocal guarantee of the forms of government eſtabliſhed in the reſpective commonwealths: for, in order to prevent internal factions, and revolts in any of the allied cantons, it was agreed by the convention of Stantz, that, in time of rebellion, the magiſtracy of ſuch canton ſhould be aſſiſted by the forces of the others. Accordingly, the hiſtory of Switzerland affords many inſtances of protection and aſſiſtance reciprocally given between the confederates, in defence and ſupport of the reſpective governments.

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action, even although he ſhould be dangerouſly wounded: "Nous entendons auſſi que ſi quequ'un s'eſtoit bleſſé en quelque façon que ce fuſt en combatant ou en aſſailant, de ſorte qu'il ſeroit inutile pour ſe deffendre; il demeurera non obſtant auſſi avec les autres, juſques à ce que la bataille ſoit expirée: et pour cela ne ſera eſtimé fuyard et ne l'en faſchera-t-on en ſa perſonne n'y en ſon bien aucunement."

* The reſpectable author of the *Account of Switzerland* has fallen into a miſtake in his deſcription of the Helvetic union; and his error has been adopted by the Abbé Mably, in his *Droit Public de l' Europe*; by the compilers of the *Encyclopédie*; and by ſeveral other writers of diſtinction.

After having given a deſcription of the Helvetic union, he concludes the relation as follows: "So far are they (the thirteen cantons) from making one body or one commonwealth, that only the three old cantons are directly allied with every one of the other twelve. There is indeed ſuch a connection eſtabliſhed between them, that in caſe any one canton were attacked, all the other twelve would be obliged to march to its ſuccour; but it would be by virtue of the relation, that two cantons may have to a third, and not of any direct alliance ſubſiſting between every one of them. As for example: Of the eight old cantons, Lucerne has a right of calling but five to its ſuccour, in caſe of attack; but then ſome of thoſe five have a right of calling others, with whom they are allied, though Lucerne be not; ſo that at laſt all muſt march by virtue of particular alliances, and not of any general one amongſt them all."

The above-cited account of the Helvetic union would better have ſuited the league of the eight cantons before the convention of Stantz; when the confederate ſtates were not ſo abſolutely and directly united together as they are at preſent; and their alliance did not perhaps totally exclude every treaty of the ſame kind with other powers. It was only by the articles of that celebrated convention, and the alliance of the eight cantons with Friburgh and Soleure, that the union became abſolutely fixed and general. It muſt be confeſſed, however, that ſeveral Swiſs hiſtorians have given the ſame idea of the Helvetic union as that above mentioned; and that even now authors differ conſiderably upon ſome important articles of the league.

No ſeparate engagement, which any of the cantons may conclude, can be valid, if inconſiſtent with the fundamental articles of this general union; for the reciprocal contract between the members of the league ſuperſedes every other ſpecies of public obligation. With theſe exceptions, the combined ſtates are independent of each other: they may form alliances with any power, or reject the ſame, although all the others have acceded to it *: may grant auxiliary troops to foreign princes; may prohibit the money of the other cantons from being current within their own territories; may impoſe taxes, and, in ſhort, perform every other act of abſolute ſovereignty.

The public affairs of the Helvetic body and their allies are diſcuſſed and determined in the ſeveral diets; and theſe are,

1. General diets; or general aſſemblies of the thirteen cantons, and of their allies.

2. Particular diets; as thoſe of the eight ancient cantons; thoſe of the Proteſtant cantons, with the deputies of the Proteſtants of Glarus and Appenzel, of the towns of St. Gallen, Bienne, and Mulhauſen, called the *evangelical conferences*; thoſe of the Roman Catholic cantons, with the deputies of the Catholics of Glarus and Appenzel, of the abbot of St. Gallen, and of the republic of the Vallais, called the *golden alliance*; as alſo the diets of particular cantons, which, beſide being members of the general confederacy, have diſtinct and ſeparate treaties with each other.

The ordinary meetings of the *general* diet are held once a-year, and continue ſitting one month; the extraordinary aſſemblies are ſummoned upon particular occaſions. It is principally convened in order to deliberate upon the beſt meaſures for the ſecurity of the Helvetic body. The canton of Zuric appoints the time and place of meeting, and convenes the deputies by a circular letter. The deputy of Zuric alſo preſides, unleſs the diet is held in the territory of any other canton; in that caſe, the deputy of that canton is preſident.

This diet formerly met at Baden; but ſince the concluſion of the civil war in 1712, between Zuric and Bern on one ſide, and Lucern, Uri, Schweitz, Underwalden, and Zug, on the other, (when the five latter renounced the co-regency of Baden,) it has been aſſembled at Frauenfield † in Thurgau. Each canton ſends as many deputies as it thinks proper.

It would be deſcending into a tedious detail, to enter into the particular connections of the ſeveral allies, either with the whole Heſvetic body, or with ſome of the cantons; and the different nature of theſe reſpective alliances. Suffer me only to remark, that the allies may be divided into *aſſociate*, and *confederate* ſtates: of the former are the abbot and town of St. Gallen, Bienne, and Mulhauſen; of the latter, are the Griſons, the republic of the Vallais, Geneva, Neuchatel, and the biſhop of Baſle.

* The five cantons which agreed not to conclude any treaty without the conſent of the eight, are neceſſarily excluded from this power, together with thoſe particular cantons, which have bound themſelves by private treaties not to contract any foreign alliance, without the reciprocal conſent of the others; as for inſtance, Uri, Schweitz, and Underwalden, by the alliance at Brunnen in 1315. But this depends upon particular treaties, and has no relation to the general union. In fact, every canton is reſtrained by the general articles of the Helvetic union; but, conforming to thoſe, no one republic is, in any other inſtance, controlled by the reſolutions of the majority among the confederate cantons.

† Frauenfield is no longer the ſcene of a free diet; in the French diviſion of Switzerland it became the capital of the canton or department of Thurgau.

The laſt diet of FREE SWITZERLAND aſſembled at Arau in January 1798, and all the deputies, that of Baſle excepted, which withdrew from the confederacy, took an oath to defend the Helvetic conſtitution to the laſt extremity. But this ſolemn appeal to heaven in defence of their liberties proved a mere ceremony, and produced no ſubſtantial effect.

The ſtates thus compriſed under the general denomination of aſſociates and confederates, enjoy by virtue of this union, a total independance on all foreign dominion; and partake of all the privileges and immunities granted to the Swiſs in other countries. And notwithſtanding ſome of theſe ſtates are allied only with particular cantons; yet if any of them ſhould be attacked, thoſe cantons with whom they are in treaty would not only ſupply them with ſuccours, but would alſo require the joint aſſiſtance of the remaining cantons: if therefore any part of the whole body ſhould be invaded, all the other members ſhould unite its defence, either as immediate guarantees, or as auxiliaries of the actual guarantees *.

LETTER XIII.—*Route by Water from Zuric to Baden.—Bridge of Wettingen.—Baden.—Caſtle of Hapſburg.*

INSTEAD of following the uſual route by land from Zuric to Baſle, we proceeded the greater part of the way by water. We embarked about two in the afternoon on the Limmat. The navigation of that river has been deſcribed as extremely hazardous; yet it is only dangerous upon the melting of the ſnow, or after violent rains, when in ſeveral places the rocks and ſhoals are covered with water. At other times there is no danger, provided the watermen are ſober and experienced.

Our boat was flat-bottomed and long, and was rowed, or rather ſteered by three watermen, who uſed their oars merely to direct the veſſel; the ſtream being ſufficiently rapid to carry us along at the rate of ſix, eight, and ſometimes even ten miles in the hour. The water is beautifully tranſparent; and its ſurface was occaſionally raiſed and agitated with high waves by a wind oppoſite to the current. The borders of the Limmat, at firſt ſomewhat flat, afterwards gentle roſe into hills clothed with paſture and wood, or divided into vineyards, were laſtly quite perpendicular, and fringed to the water's edge with hanging trees.

About a mile from Baden, where the Limmat flows with the greateſt rapidity, we ſhot under the bridge of Wettingen with ſuch velocity, that in the moment of admiring its bold projection on one ſide, I imperceptibly found myſelf on the other. This beautiful piece of mechaniſm is a wooden bridge, two hundred and forty feet in length, and ſuſpended above twenty feet from the ſurface of the water: it was the laſt work of Grubenman, the ſelf-taught architect, and is far ſuperior in elegance to that of Schaffhauſen.

We landed at Baden, and walked to Hapſburg, Schintznach, Koningsfelden, and Windiſh; of which places I ſhall give you a ſhort deſcription.

Baden derives its name from the neighbouring warm baths, which are mentioned by the ancients under the names of *Aquæ* and *Thermæ Helveticæ*. It was a Roman fortreſs, erected to curb the *Allemanni* or Germans, and was raſed, when the Helvetians, who ſupported Otho, were routed by Cæcina, general to Vitellius. Being rebuilt, it was taken by the Germans; fell afterwards under the dominion of the Franks; was, in the tenth century, incorporated in the German empire; and became ſucceſſively ſubject to the Dukes of Zæringen, to the Counts of Kyburg, and to Rodolph of

* Such was the theory of the Helvetic Government, but unfortunately the practice did not accord with the theory. The Swiſs States, inſtead of reſiſting in a compact body the aggreſſion of the French, acted without concert or unanimity, and were compelled, one after the other, to diſſolve their ancient confederacy.

Hapſburg. In 1418, when his deſcendant Frederic, Duke of Auſtria, was put under the ban of the empire, the canton of Zuric took poſſeſſion of the town and country; and, having purchaſed them from the Emperor Sigiſmond, admitted to a joint ſhare in the ſovereignty, Lucern, Uri, Schweitz, Underwalden, and Zug, Bern in 1426, and Uri in 1445.

Baden continued a bailliage of theſe eight cantons until the year 1712, when the civil war breaking out between the Proteſtant and Catholic cantons, it was beſieged and taken by the troops of Zuric and Bern; and at the peace of Arau was ceded to thoſe two cantons and Glarus, which, on account of its neutrality, preſerved its right of joint-ſovereignty. Zuric and Bern did not, however, prove their diſintereſtedneſs, when not content with finally ſettling the religious diſputes in favour of the Proteſtants, they exacted from the Catholic cantons the ceſſion of Baden, contrary to the convention of Stantz, which forms the baſis of the Helvetic conſtitution. The umbrage conceived by the Catholic cantons at this ſtep was the principal inducement to conclude a perpetual alliance with France in 1715, and to throw themſelves under the protection of that power. And this ſeparate league has not been annulled by the general treaty which Louis XVI. contracted with the thirteen cantons in 1776. Until 1712, the diet aſſembled at Baden; but has been ſince transferred to Frauenfield. The three cantons alternately appoint a bailif, who reſides in the Caſtle.

The inhabitants elect their own magiſtrates, and have their own judicial courts. In civil proceedings, an appeal lies to the bailif, and from his deciſion to the ſyndicate, compoſed of the deputies of the three cantons, and in the laſt reſort to the three cantons themſelves. In penal cauſes, the criminal court condemns, and the bailif enjoys the power of pardoning, or mitigating the ſentence. The county or bailliage contains about 24,000 ſouls *.

From Baden we walked through an agreeable and well-wooded country for ſome way, along the ſide of the Limmat, whoſe ſteep banks are covered with vines to the edge of the water; and in about two hours croſſed the Reuſs into the canton of Bern. Having paſſed through a plain, we arrived at the baths of Schintznach, a place remarkable for its agreeable poſition on the banks of the Aar, and its tepid mineral waters. It is alſo well known as being the firſt place where the Helvetic ſociety aſſembled. This ſociety, formed by ſome of the moſt learned men in Switzerland, both of the Catholic and Reformed religion, firſt helped to extend the ſpirit of toleration, and to leſſen that antipathy which ſubſiſted between the members of the two perſuaſions. Its publications have tended to promote a general zeal for the diffuſion of polite literature. The meeting of this liberal ſociety is now transferred to Olten, a ſmall town in the canton of Soleure.

Near Schintznach ſtands, on a lofty eminence, the ruins of the caſtle of Hapſburg, to which we aſcended through a wood of beech, that ſeemed almoſt coëval with the date of the caſtle. The ruins conſiſt of an ancient tower, conſtructed with maſſive ſtones, in a rude ſtyle of architecture, and part of a ſmall building of much later date.

It was erected in the beginning of the eleventh century, by Werner, Biſhop of Straſburg, came to his brothers Radebot and Latzelin, and devolved to their deſcendants. Otho, grandſon of Radebot, was probably the firſt perſon upon record who ſtyled himſelf Count of Hapſburg, and it continued to be the principal title by which

* In the new diviſion of Switzerland, the bailliage of Baden was converted into a canton or department, of which that town is the capital.

his poſterity was diſtinguiſhed, until it was loſt in a greater dignity, when Rodolph of Hapſburg was elevated to the imperial throne. His ſucceſſors granted the caſtle and its dependencies as a fief, firſt to the lords of Wildeck, and afterwards to the lord of Wolen: in 1415 it was occupied by Bern, during the conteſt between the Emperor Sigiſmond and Frederic of Auſtria, and given to the family of Segeſern of Bruneck. In 1469, it was ſold to the convent of Konigsfelden; on the diſſolution of that monaſtery at the reformation, was ſeculariſed, and ſeized by government; has gradually gone to decay, and is now inhabited by a peaſant's family.

This caſtle commands an unbounded view over hills and dales, plains and foreſts, rivers and lakes, towns and villages, mountains and alps; emblem of that extent of power to which the talents of *one man*, who derived his title from this caſtle, raiſed himſelf and his deſcendants. You will readily perceive I allude to Rodolph of Hapſburg, who, from a ſimple baron of Switzerland, became Emperor, and founded the Houſe of Auſtria.

Rodolph was born in 1218. Having ſignalized his youth in conſtant ſcenes of warfare and contention, he was, in 1273, unexpectedly raiſed to the dignity of Emperor, and conferred honour on that exalted ſtation, no leſs by his political ſagacity than by his military proweſs. He died in 1291, after a long and glorious reign, and in the ſeventy-third year of his age.

Impreſſed with theſe ideas, as I conſidered on the very ſpot, the origin of the Houſe of Hapſburg, and its gradual progreſs towards that height of power which it has ſince attained under the more diſtinguiſhed appellation of the Houſe of Auſtria: I compared it to a ſmall rill in the Alps, whoſe ſource is uncertain, which, having received ſeveral ſtreams, forms no inconſiderable river. Flowing through Switzerland ſtill almoſt unknown to its neighbours, it no ſooner enters Germany, than it loſes its name by its junction with the Danube; and, having collected the tribute of numberleſs rivers, rolls, with accumulated and ſtill increaſing waters, through a large extent of country, and falls by a hundred mouths into the Euxine ſea;

——— *et pare*
Che guerra porta e non tributo al mare *.

Rodolph, during his reſidence in this caſtle, would not have given credit to a perſon endowed with the ſpirit of prophecy, who ſhould have informed him, that, in little more than a century, a few ſmall republics would drive his deſcendants from their hereditary dominions in Switzerland, and erect upon their ruins, and on the baſis of equal liberty, a formidable confederacy, which would be courted by the moſt powerful ſovereigns. Still leſs perhaps would he have believed, that he himſelf ſhould poſſeſs the imperial throne; that his lineal deſcendants ſhould rule over Germany, Hungary, Bohemia, Auſtria, Spain, Burgundy, the Low Countries, Milan, Naples, and Sicily, and extend their dominion and influence from the ſhores of the Euxine to the New World beyond the Atlantic.

LETTER XIV.—*Konigsfeldon.—Windiſh.—Voyage down the Rhine.*

Having gratified our curioſity at the caſtle of Hapſburg †, that cradle of the Houſe of Auſtria, which ſtill confers a title on the preſent Emperor of Germany, we de-

* Taſſo.

† There is alſo a caſtle of Hapſburg, ſituated near the lake of Lucern, which I viſited in 1779. Some authors have erroneouſly aſſerted, that this was the caſtle from which the counts derived their titles. But Hergot has refuted this opinion; and unqueſtionably proved that honour to be due to the caſtle of Hapſburg which I have deſcribed in the preceding letter. See Hergot, Gen. Dipl. Augſ. Domus Habſb.

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ſcended into the plain of Konigsfeldon, to a convent of the ſame name, built by Elizabeth, on the ſpot where her huſband the Emperor Albert was aſſaſſinated. Albert, as guardian to his nephew John of Hapſburg, had taken poſſeſſion of his hereditary dominions in Switzerland, and refuſed, under various pretences, to deliver them up to him. Wearied with repeated and fruitleſs ſolicitation, John entered into a conſpiracy againſt the Emperor, with Rhodolph de Warth, Ulric de Palme, Walther de Eſchenbach, and Conrad de Tagerfeld.

The Emperor dined at Baden, in his way to Rheinfelden, a town in the circle of Suabia, where the Empreſs his conſort had collected a conſiderable body of troops, for the purpoſe of invading the three cantons of Uri, Schweitz, and Underwalden, which had revolted againſt him. Contemporary hiſtorians, who have recorded the minuteſt circumſtances in this whole tranſaction, relate, that Albert was in high ſpirits during the repaſt; and that, his nephew again entreating to be put into poſſeſſion of his hereditary dominions, the Emperor, with an air of banter, placed a garland upon his head, adding, at the ſame time, "This will be more ſuitable to you for the preſent, than the cares of a troubleſome government." This taunt ſo deeply affected the young prince, that he burſt into tears, flung away the flowers, and could not be prevailed upon to ſit down to table.

After dinner Albert continued his journey on horſeback, accompanied by his ſon Leopold, the conſpirators, and his uſual attendants; and came near the town of Windiſh, in the canton of Bern, to the Reuſs, over which river paſſengers were uſually ferried upon a raft. The conſpirators firſt paſſed over, and were followed by Albert: as he was riding gently on, expecting Leopold and the remainder of his ſuite, he was ſuddenly beſet by the aſſaſſins. One of them having ſeized his horſe's bridle, John of Hapſburgh reproached him for his injuſtice in detaining his dominions, and ſtruck him on the neck with his ſword: Rhodolph de Warth wounded him in the ſide, and Ulric de Palme clove his head with a ſabre. In this condition they left him expiring upon the ground.

This aſſaſſination was perpetrated the firſt of May 1308, in the open day, and in the ſight of his ſon and the reſt of his ſuite, who had not as yet paſſed the river, and who, though ſpectators of the murder, yet could not aſſiſt the Emperor. The field lies between the Aar and the Reuſs, not far from the junction of thoſe two rivers; and the very ſpot where he was maſſacred is marked by a convent, erected by his wife Elizabeth and his daughter Agnes; the place was called *Konigsfelden*, or King's field; a name it retains to this day. The remains of the Emperor were buried in the convent of Witterling, from whence they were afterwards tranſported to Spire, and there interred.

The aſſaſſins eſcaped into the cantons of Uri, Schweitz, and Underwalden, expecting to find a ſure aſylum in a nation which Albert was preparing to invade. But the generous natives, deteſting a crime of ſo atrocious a nature, although committed upon the perſon of their greateſt and moſt formidable enemy, refuſed to protect the murderers. D'Eſchenbach concealed himſelf in the diſguiſe of a common labourer during thirty years, nor was his rank diſcovered till he confeſſed it upon his death-bed; De Palme, deſtitute of common neceſſaries, died in extreme poverty; De Warth, tied to a horſe's tail, like a common malefactor, dragged to the place of execution, was broken upon the wheel. John of Hapſburg, commonly known by the appellation of *parricide*, did not reap the expected benefits of the crime; for, by order of the Emperor Henry the Seventh, he retired into a monaſtery of Auguſtine friars, where he died in 1313.

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The widow of Albert turned her whole thoughts towards revenging the death of her husband, and in this pursuit involved the innocent as well as the guiltty; all who had the smallest connexion with the assassins, being sacrificed with undistinguished cruelty. Meanwhile the three cantons were, for a few years, left to the undisturbed enjoyment of their liberties, and to strengthen themselves against any future attack; and thus they innocently reaped the sole advantage which was derived from this assassination.

The convent or abbey of Konigsfelden comprized within its extensive precincts a nunnery of the order of St. Clare, and a monastery of monks of the order of Minorites, separated from each other by a wall. It was richly endowed by Elizabeth, her five sons, and her daughter Agnes, Queen of Hungary, who assumed the habit of a nun, and here passed the remainder of her days. At the Reformation the abbey was secularized, and its lands appropriated by government: part of the building became the residence of the bailif, part was converted into an hospital, and part was suffered to fall to ruin. Many of the cells formerly occupied by the nuns, still exist in their original state; and one, in particular, is distinguished as the habitation in which Queen Agnes lived and died.

The chapel still remains entire, but is no longer used for divine service. The glass windows are beautifully coloured, and painted with various histories of the Old Testament; with the portraits of Elizabeth and Agnes, of the Emperor Albert, and his sons.

On the walls are coarsely represented the figures of Leopold Duke of Austria, and the principal nobles who perished at the battle of Sempach. Elizabeth and Agnes, and several princes and princesses of the House of Austria, were buried in this chapel; but their bones were a few years ago removed to the abbey of St. Blaise, in the Black Forest, where they were deposited with great pomp, and magnificent sepulchres erected to their memory.

Near Konigsfelden is the small village of Windish, standing at the conflux of the Aar and the Reuss, and supposed by antiquarians to occupy the site of *Vindonissa*, a Roman fortress mentioned by Tacitus. In traversing the place I did not observe the least signs of any antiquities; but various lapidary inscriptions, mile-stones, sepulchral urns, medals, coins, and gems, which have been found in great abundance, sufficiently prove that it must have been the station of a large Roman colony. The reader, who is inclined to reflect on the vicissitudes of human possessions, will recollect with pleasure the following quotation: "Within the antient walls of Vindonissa, the castle of Hapsburg, the abbey of Konigsfeld, and the town of Bruck, have successively arisen. The philosophic traveller may compare the monuments of Roman conquest, of feudal or Austrian tyranny, of monkish superstition, and of industrious freedom. If he be truly a philosopher, he will applaud the merit and happiness of his own time*."

Early the next morning we embarked on the Aar, which, though here a trifling stream, yet, being considerably swelled by the tribute of waters from the Reuss and the Limmat, soon becomes a considerable river. Its bank are agreeably enlivened with meadows and woods, and spotted occasionally with villages, castles, and ruins, hanging on the water's edge. Having made a small turn, it falls by a strait channel into the Rhine, vying in size and rapidity with the great river in which it loses its name: its waters, which are of a silvery hue, are for a long way distinguished from those of the Rhine; which, being transparent, and of a sea-green colour, seem to disdain the union.

* Gibbon's Decline and Fall of the Roman Empire, vol. iii. p. 563.

The

The banks of the Rhine are far ſuperior in wildneſs and beauty to thoſe of the Aar, in many parts riſing perpendicularly, yet feathered with wood; in others ſloping in gentle declivities, richly bordered with vines, foreſt, and paſtures; and exhibiting a continual ſucceſſion of towns and villages. The rapid ſtream carried us above eighteen miles in three hours, and we landed at Lauffenburgh, where the Rhine forms a cataract, which, though greatly inferior to the fall of the ſame river near Schaffhauſen, yet deſerves to be viſited by travellers for the beauties of the ſcenery. As I ſtood upon the crags of the northern ſhore, the principal objects were, a high bridge, partly open and partly covered, ſupported by three lofty ſtone piers; on the ſouth a row of houſes, with an old ruined caſtle on a ſummit, boldly overhanging the water; a perſpective of woods and meadows under the arcades of the bridge; and the river daſhing over its craggy bed, in a ſloping cataract, until it is ſuddenly loſt among the rocks which cloſe the view.

About half a mile below this fall we re-embarked, and found the waters in many parts more agitated than thoſe of the Limmat; particularly near Rheinfelden, where they ruſh with ſuch increaſing velocity, that they were troubled like the waves of the ſea, and, beating againſt the boat, turned it obliquely by their violence. Here we were hurried along with ſuch rapidity, that though I had a pencil in my hand, I had no time for obſervation, much leſs for deſcription; I could only catch a general glance of the romantic ſcenery, as we paſſed under a picturesque bridge of ſeveral arches, ſuſpended high above the ſurface of the river, and joined to a ſteep rock, on which towered ſome majeſtic ruins. In many parts, and for a conſiderable way, our veſſel paſſed within a few inches of the ſhelving rocks, and was only prevented from ſtriking them by the dexterity of the pilot.

As we approached Baſle, the ſtream became leſs rapid; and we diſembarked, highly delighted with our expedition.

LETTER XV.—*The Town of Baſle.—Eraſmus.—Library.—Holbeïn.*

I ARRIVED at Baſle or Baſel, I ſuppoſed, about twelve at noon; but was much ſurprized to find, that all the clocks * actually ſtruck one: and, on inquiry, I was informed, that they conſtantly go an hour faſter than the real time. Different reaſons have been aſſigned for this ſingularity: ſome aſſert, that it was firſt practiſed during the council of Baſle, in order to aſſemble, at an earlier hour, the cardinals and biſhops, who, being lazy and indolent, always arrived late. Others maintain, that a conſpiracy being formed to aſſaſſinate the magiſtrates at midnight, one of the burgomaſters, who had notice of the deſign, advanced the town-clock an hour; by which means the conſpirators, imagining they had miſſed the appointed time, retired; and that the clocks are ſtill kept in the ſame advanced ſtate, as a perpetual memorial of this happy deliverance. But there is a third reaſon given for this ſtrange cuſtom, which ſeems the moſt probable. It is well known that the choirs of cathedrals are conſtructed towards the eaſt: that of Baſle declines ſomewhat from this direction; and the ſun-dial, which is placed upon the outſide of the choir, and by which the town-clock is always regulated, partakes of this declination; a circumſtance which, according to the celebrated Bernoulli, occaſions a variation from the true time of about five and forty minutes.

* The clocks of Baſle, as well as the government, have undergone a revolutionary change in the new order of things. The motion for altering the clocks according to the real time was made by M. de Meehel.

The inhabitants of Baſle are ſtill ſo ſtrongly attached to this whimſical cuſtom, that, although it has been often propoſed in the ſovereign council to regulate their clocks properly, yet the motion has been invariably rejected; and the people would ſuſpect that their liberties were invaded, if their clocks agreed with thoſe of the reſt of Europe. A few years ſince, ſeveral leading men of the town determined to alter the hand of the ſun-dial half a minute a day, until the ſhadow ſhould imperceptibly point to the true hour. This expedient was accordingly practiſed, and the clock had already loſt near three quarters of an hour, when an accident diſcovered the deſign: the magiſtrates were accordingly compelled to place the hand of the ſun-dial in its former poſition, and to regulate the hours as uſual. Indeed, long-eſtabliſhed cuſtoms, however indifferent or ridiculous, are apt to make ſo ſtrong an impreſſion upon vulgar minds, as to become ſometimes dangerous, and always difficult to be aboliſhed; eſpecially among a people, like thoſe of this country, who are averſe to any change, even in the minuteſt articles. I need not remind you, how long it was before the Engliſh could be perſuaded to reckon their years according to the general mode of computation in Europe.

Baſle is beautifully ſituated upon the banks of the Rhine, near the point where that river, which is here broad, deep, and rapid, after flowing for ſome way from eaſt to weſt, turns ſuddenly to the north. It conſiſts of two towns joined together by a long bridge; the Large Town lies on the ſide of Switzerland, and the Small Town on the oppoſite banks of the river. It ſtands very favourably for commerce; an advantage which the inhabitants have by no means neglected; for they have eſtabliſhed a great variety of manufactures, particularly of ribands and cottons; and an extenſive trade is carried on by the principal merchants.

The cathedral is an elegant gothic building, but ſtrangely diſfigured by a daubing of roſe-coloured paint. It contains the aſhes of Gertrude Anne Counteſs of Hohenburg, wife of the Emperor Rodolph I. who died at Vienna, in 1281, and her body was conveyed to Baſle. Her two chriſtian names gave riſe to much confuſion, and led many hiſtorians to conclude that Gertrude and Anne were two different perſonages, and ſucceſſive wives of that Emperor; while others ridiculouſly ſuppoſed that both were married to him at the ſame time: nor were theſe erroneous opinions confuted, and the controverſy finally ſettled, till Hergot, the laborious genealogiſt * of the Houſe of Auſtria, proved, from the moſt unqueſtionable authorities of ancient diplomes, the identity of this divided perſonage; and that the miſtake aroſe from her being uniformly ſtyled Gertrude before her coronation, and Anne after the performance of that ceremony. She bore to her huſband fourteen children; and though the mother of ſo large a family, yet ſuch was her extreme ſenſibility, that the grief which ſhe ſuffered at the departure of her daughter Clementina to Naples, on her marriage with Charles Martel, hurried her to her grave.

In the ſame church are depoſited, under a marble tomb, the venerable remains of the great Eraſmus. That diſtinguiſhed writer joined to ſuperior learning, and a peculiar elegance of ſtyle, the keeneſt wit, which he pointed, not only againſt the vices and ignorance of the monks, but the general corruptions and diſorders of the Roman church. He was indeed the forerunner of Luther, in his firſt attacks upon the Catholics, reſpecting the ſale of indulgences: but afterwards, when the controverſy appeared more ſerious, and an open breach with the church of Rome ſeemed inevitable, he condemned the proceedings of that bold reformer. He conſidered them, indeed, as altogether unwarrantable; and, although he had himſelf cenſured and expoſed the corruptions that infected the Cartholic religion; yet he zealouſly inculcated ſubmiſſive

* See Hergottii Geneal. Diplom. Dom. Auſt. vol. i. p. 125.

obedience

obedience to the decrees of what he called the "univerſal church." Agreeably to theſe ſentiments he adviſed the proteſtants to endeavour at obtaining, by mild and patient meaſures, what they might indiſcreetly loſe by a warmer and more violent oppoſition.

Such temperate counſels were ill ſuited to the daring and impetuous ſpirit of Luther. Accordingly, while Eraſmus was acting the part of a mediator, and endeavouring to moderate and allay the flame on each ſide, he drew upon himſelf the diſpleaſure of both parties: in alluſion to this temporiſing conduct, one of his adverſaries applied to him, not unaptly, that line in Virgil,

Terras inter cœlumque volabat.

The impartial truth ſeems to be, that he was by no means diſpoſed to become a martyr in the cauſe: the natural timidity of his temper, a too great deference to perſons of ſuperior rank and power, and perhaps the fear of loſing his penſions, induced him to take a decided part againſt the reformers, and condemn their ſeparation from the church of Rome.

But it would be uncandid to impute his conduct wholly to ſelfiſh conſiderations: ſomething may fairly be aſcribed to the powerful impreſſions of early prejudices; and ſomething to that rooted love of peace and ſtudious tranquillity, which ſeems to have been the ſpring of all his actions. But, whatever imperfections may be diſcovered in ſome particular parts of his character, his memory muſt be revered by every friend of genius, learning, and moderation. Livelineſs of imagination, depth and variety of erudition, together with great ſagacity of judgement, were in him eminently united. He infuſed a ſpirit of elegance even into theological controverſies; and contributed to diſencumber literature from that ſcholaſtic jargon with which it was diſgraced. Eraſmus reflected much honour upon this town, by chooſing it as the favourite place of his reſidence, and publiſhing from hence the greateſt part of his valuable works. In the public library are preſerved, with great veneration, his hanger and ſeal, ſeveral of his letters, and his laſt teſtament, written with his own hand.

The univerſity of Baſle was formerly eminent in the literary hiſtory of Europe. Who, in the leaſt converſant in letters, is unacquainted with the celebrated names of Oecolampadius, Amerbach, the three Bauhins, Grynæus, Buxtorf, Wetſtein, Iſelin, the Bernoullis, and Euler. If it has fallen from its priſtine ſtate of renown, its decline muſt be principally imputed to the caſual mode of electing the profeſſors; but it ſtill boaſts ſeveral members who do honour to their native town by their learning and abilities.

The public library contains a ſmall collection of books, remarkable for ſeveral rare and valuable editions; particularly of thoſe printed in the fifteenth century. The moſt curious manuſcripts are numerous letters of the firſt reformers, and of other learned men in the fifteenth, ſixteenth, and ſeventeenth centuries; and an account of the proceedings at the council of Baſle. The minutes of that council were taken by John of Segovia; and are ſuppoſed to be the ſame which are preſerved either in the library, or in the archives of the town: the former is written on paper, the latter on parchment. A queſtion has ariſen which of theſe is the original. Some conclude in favour of that in the archives, on account of the many falſe readings and miſtakes in the other, which are plainly the faults of the copyiſt. Others give the preference to that in the library, becauſe it is written in different hands, and with different ink, which ſeem to imply that it was noted down at various intervals, according as the acts of the council were paſſed; whereas that in the archives, being penned on parchment, in the ſame hand

and with the ſame ink, was probably copied from the original minutes; for who, it is urged, would take minutes on parchment? A third opinion, ſtill more probable, is, that neither of theſe is the original, Several paſſages are wanting in both; which omiſſion may have proceeded from the tranſcriber not being able to read every part of the original. It is probable that John of Segovia took away the minutes, and depoſited them at Rome; and that one of theſe manuſcripts was the copy tranſcribed by order of the council; of theſe, the manuſcript on parchment appears to be the moſt authentic.

In a ſuite of rooms belonging to this library, is a cabinet of petrifactions, collected in the canton of Baſle by the Rev. Mr. Annoni: ſome ancient medals and gems; a few antiquities found at Auguſt; a large number of prints; and ſome fine drawings and paintings, conſiſting chiefly of originals by Holbein, who was a native of this town. Theſe pictures are, moſt of them, in the higheſt preſervation: the connoiſſeur can here trace all the different manners of Holbein, and compare the productions of his youth with thoſe of his maturer age. A few are preſerved, which he painted before he had reached his ſixteenth year; and one, extremely curious, which he drew upon a ſign for a writing-maſter. The portraits of himſelf, his wife, and children in the ſame group, are much admired for nature and ſimplicity of expreſſion. The moſt valuable of theſe paintings is an altar-piece, in eight compartments, which repreſents the paſſion of our Saviour: a performance, in which this admirable artiſt has carried to the higheſt perfection that ſingular brilliancy of colouring ſo peculiar to his beſt compoſitions. I was much ſtruck with a profile of his friend and patron Eraſmus, writing his commentary upon St. Matthew; there is a ſpirit and animation in the countenance, finely expreſſive of his ſagacious and penetrating talents.

Among the works of Holbein, that diſcover the livelineſs of his fancy, muſt be mentioned the ſketches he drew on the margin of the Eulogium of Folly by Eraſmus, which he received as a preſent from the author. This curious volume is preſerved in the library, and has been lately publiſhed by Mr. Haas, in French, Latin, and German, with fac-ſimiles of the original deſigns, engraved on wood.

The dance of death, in the church yard of the predicants of the ſuburbs of St. John, is frequently ſhewn to ſtrangers as being of Holbein's pencil. It is painted in oil-colours upon a wall which encloſes the burial-ground: but, as it has ſeveral times been retouched, no traces are diſcoverable of that great maſter's hand. In fact, the Hon. Horace Walpole, and other unqueſtionable judges, have proved, that this performance was painted before Holbein was born, and that he was not employed even in retouching it. It is probable however, that, from this ancient painting, he took the firſt hint towards compoſing his famous drawings on the dance of death. In treating that ſubject, he has diſplayed ſuch richneſs of imagination, and diſcovered ſo much judgement in the diſpoſition, and ſo much ſpirit in the execution of the figures, that Rubens ſtudied them with particular attention, and took drawings from them.

The originals of Holbein's dance of death were purchaſed by M. Fleichman of Straſbourg, at the ſale of the famous collection of Crozat, at Paris; of which Mariette has publiſhed a catalogue. They are now in the poſſeſſion of prince Gallitzin, miniſter from the Empreſs of Ruſſia to the court of Vienna. They conſiſt of forty-four ſmall drawings: the outlines are ſketched with a pen, and they are ſlightly ſhaded with Indian ink. I had frequent opportunities of ſeeing them, during my continuance at Vienna, and particularly admired the variety of attitudes and characters in which death is repreſented.

Prints have been taken from ſome of theſe drawings by Hollar, which are very ſcarce. Mr. de Mechel, a celebrated artiſt of this place, has already engraved them after the

original deſigns; a work which cannot fail of being highly acceptable to the admirers of the fine arts; he has added four engravings, which are not in the prince's collection, and which are taken from the prints of Hollar. He ingeniouſly conjectures, from the dreſſes and characters of ſeveral of the figures in the dance of death, that the author ſketched them while he was in England. They were, probably, in the Arundelian collection when Hollar engraved them.

Mr. de Mechel has finiſhed alſo a ſet of prints from the fine paintings of the Duſſeldorf gallery, and likewiſe engravings of the famous Hedlinger's medals. This able artiſt has a ſmall but well choſen collection of paintings; and his magazine of prints (in which article he carries on a very conſiderable trade) is perhaps one of the largeſt and moſt complete in Europe. I am acquainted with no perſon to whom the curious traveller can addreſs himſelf with greater advantage than to Mr. de Mechel, nor from whom he can receive more uſeful information. To a particular knowledge of the phyſical beauties of Switzerland, he joins a thorough acquaintance with the different governments, cuſtoms, and manners of the ſeveral cantons. As he is intimately connected with the principal men of learning in this country, his letters of recommendation are the moſt deſirable, and the moſt beneficial, that can be procured, and he enjoys as much ſatisfaction in conferring, as can be received by accepting, his good offices. He indeed poſſeſſes a great fund of good humour, an amiable frankneſs of diſpoſition, and a certain originality of manner, which, together with his other valuable qualities, recommend him as a no leſs pleaſing than uſeful acquaintance.

I viſited alſo the ſmall but pleaſing collection of pictures, moſtly of the Flemiſh and Dutch ſchools, belonging to M. Faeſch, member of the Great Council. In the court-yard before his houſe is a wooden ſtatue of Rodolph I. ſitting on a throne, and clothed with the imperial inſignia: underneath I obſerved the date of 1273, the æra of his coronation. The rudeneſs of the ſculpture renders it probable that it is an original of that great Emperor, who was beſieging Baſle when he received the unexpected news of his election. The gates were immediately thrown open; and he was inſtantly admitted as a friend into that town, which had ſhut its gates againſt him as their enemy. On this occaſion he reſided a ſhort time at Baſle, and, as tradition relates, in this very houſe.

I am, &c.

LETTER XVI.—*Government of Baſle.*

THE biſhops of Baſle once poſſeſſed the ſovereignty over the city and canton; but were gradually deprived of their prerogatives; and, in 1501, finally quitted this town, when the canton joined the Helvetic confederacy. They retired at firſt to Friburgh in Briſgau; and afterwards, eſtabliſhing their reſidence at Porentru, entirely loſt the trifling authority and inconſiderable prerogatives which remained to them. Upon the introduction of the reformation in 1525, the conſtitution was in ſome meaſure changed; and the power of the ariſtocracy limited.

It would ſeem in theory ſcarcely poſſible to divide the ariſtocratical and democratical commonwealths into ſo many different ſpecies as exiſt in Switzerland: for, in this country, every republic has its peculiar modification; and their is none more ſingular than that of Baſle. To view the general outlines of the conſtitution, it has the appearance of an abſolute ariſtocracy *; but, upon conſidering it in detail, it will be found to incline towards

* An ariſtocracy (ſtrictly ſpeaking) means that form of government, which places the ſupreme power in the nobles, excluſively of the people; but here I mean by it, the confining of the ſovereign authority to

towards a democracy. The ſupreme legiſlative power reſides in the Great and Little Councils, conſiſting of about three hundred members; and the authority of theſe two councils combined is without controul. They enact laws, declare war and peace, contract alliances, and impoſe taxes: they elect the ſeveral magiſtrates, appoint their own members, nominate to all employments, and confer the right of burgherſhip. The general adminiſtration of government is committed by the Great Council to the Senate, or Little Council; that is, to a part of its own body. This Senate, compoſed of ſixty members, together with the four chiefs of the republic, two burgomaſters, and two great tribunes, is divided into two bodies, which act by rotation. The acting diviſion continues in office one year, decides finally in all criminal cauſes, ſuperintends the police, and exerciſes ſeveral other powers ſubordinate to the Sovereign Council. The collective body of citizens aſſembles only once a year; when the magiſtrates publicly take an oath to maintain the conſtitution, and preſerve the liberties and immunities of the people inviolate. The reciprocal oath of obedience to the laws is adminiſtered to the citizens in their reſpective tribes.

But, notwithſtanding the boundleſs prerogatives of the Great Council, yet the meaneſt citizen is legally capable of being admitted into that body, and by the ſingular method of election may poſſibly be choſen. For the vacancies in the two councils are ſupplied from all ranks of citizens, one claſs only excepted, the members of the univerſity. Theſe citizens are divided into eighteen tribes, called in German *Zuenfte*, fifteen of which belong to the larger town, and three to the ſmaller; each of the firſt-mentioned fifteen tribes returns four members to the ſenate, and each of the whole eighteen ſends twelve to the Great Council. Formerly theſe elections were determined by a plurality of voices; but as by theſe means the richeſt perſon was always certain of being choſen, a *ternaire* was eſtabliſhed in 1718, that is, three candidates were nominated, and from theſe the ſucceſſor was appointed * by lot.

Although this mode of election in ſome meaſure put a ſtop to corruption, yet it was not ſufficient to counteract entirely the influence of the wealthy; and as the poorer citizens could ſeldom ſucceed to the moſt honourable or lucrative employments, they procured an act to be paſſed in 1740, changing the *ternaire* into a *ſenaire*; by which ſix candidates, inſtead of three, were put in nomination, and drew lots for the charge. Six tickets, containing the names of the reſpective candidates, and ſeparately placed in ſilver eggs, are inſerted into one bag; and the ſame number of tickets, five of which are blanks, and one is marked with the vacant employment, are placed in another. The reigning burgomaſter and the great tribune, appointed to be the drawers of this *official* lottery, both at the ſame inſtant take a ticket from each bag, and the candidate whoſe name comes out at the ſame time with the ticket on which the employment is written, obtains the poſt.

It would be too tedious, and indeed too unintereſting a detail, to enter into a minute account of the forms and circumſtances requiſite to be obſerved in ſelecting the ſeveral

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to a certain limited number of perſons, without conſidering whether they are patricians or plebeians, nobles or commons; for at Baſle every citizen who is noble, and who chooſes to retain his title of nobility, is incapable of being elected a member of the Sovereign Council.

* The fifteen tribes in the great town are called *Zuenfte*, and the three in the ſmall town *Geſellſchaften*, or companies. It may alſo be remarked, that the citizens of the ſmall town enjoy more advantages than thoſe of the great town; inaſmuch as the former may be appointed to public employments either in the tribes or in the companies; whereas a citizen of the great town cannotbe admitted into the companies, unleſs he reſides in the ſmall town.

candidates. To give, however, ſome general idea of this matter: Upon a vacancy in the Great Council, for inſtance, the ſix candidates muſt be taken from the citizens of that tribe, to which the perſon who occaſioned the vacancy belonged, and be nominated by ſuch of the members of the Great and Little Councils as are of the ſame tribe. The candidates for the ſenate and for the tribunes or chiefs of each tribe, called in German *meiſter*, are appointed by the Great Council. But there is one caſe in which the *ſcenaire* is not practiſed; for, upon the death of a burgomaſter, his colleague, who is the great tribune, ſucceeds of courſe.

It ſhould ſeem that many inconveniences muſt flow from this abſurd method of ſupplying vacant poſts in the government, as they are left entirely to the capricious diſpoſal of fortune. In fact, it has not unfrequently happened that a candidate, whoſe knowledge and abilities rendered him capable of being ſerviceable to the ſtate, has never obtained the ſucceſsful ticket; while chance has beſtowed it upon another by no means qualified to fulfil the duties of the employment. However, notwithſtanding the ill effects reſulting from this caſual mode of election, the management of public affairs is in general well conducted; and there are few inſtances of civil juſtice unwiſely adminiſtered, or of innocence ſacrificed to wealth or power.

But the counſellors of ſtate and magiſtrates are not the only perſons choſen by lot; even the profeſſors in the univerſity are elected in the ſame manner. The three candidates (for in this inſtance the *ternaire* is ſtill in uſe) muſt be nominated from thoſe who have taken the degree of doctor. Hence a candidate not unfrequently offers himſelf for the profeſſorſhip of a ſcience which he has never made the peculiar object of his ſtudies, if the chair of that particular branch of literature in which he excels is already occupied; for, under theſe circumſtances, the reſpective unqualified profeſſors change places with each other. Thus (to mention an inſtance from a family well known) John Bernoulli, the famous mathematical profeſſor in this univerſity, who died in 1748, left three ſons, Nicholas, Daniel, and John, all juſtly celebrated for their ſkill in that ſcience, in which their father and uncle ſo eminently excelled. Nicholas died at St. Peterſburgh, member of the Imperial Academy of Sciences; and Daniel, having followed his brother into Ruſſia, returned to Baſle on obtaining the profeſſorſhip of anatomy, which he afterwards had an opportunity of happily exchanging for that of natural philoſophy; he died in 1782 *. A ſimilar circumſtance happened to the third ſon John; after being ſeveral times an unſucceſsful candidate in the lottery of profeſſorſhips, chance at length

* The following curious epitaph on a lawyer, interred in the cathedral, complains that the deceaſed, notwithſtanding his advanced age of 84, which had afforded many opportunities of being nominated candidate for various offices of ſtate, had been continually excluded by fortune:

S: E: S:
Locum quo Sepeliretur
de ſuo acquiſivit
JOH: GEORG. SCHWEIGHAUSER
J. U. L. Ducentum Vir
Fori judiciarii et Appellationis
ultra XL Annos aſſiduus Aſſeſſor
muneribus autem Academicis
et publicis Officiis
Sorte conſtanter excluſus
vixit tamen et vivere deſiit
ut Virum Honeſtum decet
natus Menſe Januario 1695.
Obiit Die VII. Menſis Junii 1779.
H. M. H. P.

con-

conferred on him the chair of *rhetoric*, for which he was wholly unfit; but upon his father's death he changed with M. Rumſpeck, to whom fortune had aſſigned the profeſſorſhip of mathematics.

The ſumptuary laws are very ſtrict at Baſle. The uſe of coaches in the town is not indeed prohibited, as at Zuric; but what is more ſingular, no citizen or inhabitant is allowed to have a ſervant behind his carriage. Laws of this kind may be carried, in ſome inſtances, to a ſcrupulous and even ridiculous minuteneſs; upon the whole, however, they are excellent regulations, and not only uſeful but neceſſary in a ſmall republic. They have certainly operated with great advantage in this town; for although it contains ſeveral families who are conſiderably rich, yet a happy ſimplicity of manners is ſtill ſo predominant, that you would ſmile if I were to particulariſe thoſe articles which paſs under the opprobrious denomination of *luxury*.

The lower ranks of citizens are in general ſo ſtrongly prejudiced in favour of their own country, as to ſeem convinced that true felicity is only to be found at Baſle; and indeed that claſs of people are in no part of the world more happy. Every perſon boaſts that he is free, and is ſo in reality; and as the citizens not only poſſeſs very conſiderable privileges, but each individual may alſo indulge the hope of being one day choſen into the Sovereign Council; he enjoys a certain degree of reſpect and conſideration extremely flattering to his ſelf-importance. In fact, ſeveral of the magiſtrates exerciſe the meaner trades; and the preſent treaſurer, whoſe name is Muench, is a baker: he is indeed a perſon of diſtinguiſhed knowledge and merit, and has been twice appointed one of the candidates for the office of great tribune; which, had fortune favoured him, would have been followed on the next vacancy by his ſucceſſion to the office of burgomaſter. In general the burghers' ſons receive an excellent education: they always learn the Latin, and not unfrequently the Greek tongue; and it is by no means unuſual, even for the lower ſort of tradeſmen, to employ their leiſure hours in the peruſal of Horace, Virgil, and Plutarch.

The conduct of magiſtrates is nowhere more freely, nor more ſeverely, criticiſed than at Baſle. The people may ſometimes, no doubt, extend this privilege beyond its proper limits; but they can never be totally reſtrained from exerciſing it, without ſtriking at the vitals of their liberty: it is eſſential to their exiſtence, and no free government can long ſurvive its extinction.

Baſle is the largeſt, and ſeems formerly to have been one of the moſt populous towns in Switzerland: its extent is capable of containing above a hundred thouſand inhabitants; whereas it can ſcarcely number more than fourteen thouſand. Many particular cauſes may have concurred to occaſion this remarkable decreaſe; but I will mention only one or two to which it may be attributed.

It is proved, from undoubted calculations, that in all great cities the number of burials exceeds that of births; conſequently, unleſs this unequal proportion is compenſated by a conſtant acceſſion of new inhabitants, in proceſs of time every great town muſt neceſſarily become depopulated. Now the citizens of Baſle are ſo jealous of the burgherſhip, and pride themſelves ſo much upon the privileges which accompany it, that they ſeldom deign to confer it upon foreigners: a ſupply therefore to balance that gradual waſte of people I have mentioned, can never be derived from an influx of ſtrangers, who are not permitted to carry on commerce, or to follow any trade. A few years ago ſome of the magiſtrates, ſenſible of the impolicy of this prohibition, procured a law, by which the freedom of the town and the right of burgherſhip was allowed to be conferred

ferred upon ſtrangers; but it was clogged with ſo many reſtrictions, as by no means anſwer the purpoſe for which it was intended. Every principle indeed of private intereſt and ambition concurred to prevent its efficacy; and no wonder, for bodies of men are ſeldom actuated by ſo generous a ſpirit as to ſacrifice their perſonal and immediate advantages to the future welfare and proſperity of their country *. I am, &c.

LETTER XVII.—*Combat at the Hoſpital of St. James, between the Forces of Louis Dauphin of France, and a Corps of Swiſs Troops.—Ruins of Auguſt.—Mulhauſen.*

CURIOSITY led me, during my continuance at Baſle, to viſit the hoſpital and burying-ground of St. James, not far from the town, and near the ſmall river Birs, celebrated for a deſperate combat in 1444, between the Swiſs and the Dauphin of France, afterwards Louis XI. Never was Swiſs valour and intrepidity ſo ſignally diſplayed, as by a few battalions of their troops on that memorable day.

This famous battle was fought in conſequence of ſome diſputes which aroſe between the canton of Zuric and thoſe of Schweitz and Glarus. Zuric refuſing to abide by the mediation of the five neutral cantons, who had decided in favour of Schweitz and Glarus, a civil war enſued; upon which occaſion Zuric formed an alliance with the Emperor Frederic the Third. The ſeven antient cantons, in order to obtain a renunciation of this alliance, which they juſtly conſidered as an infringement of their league, laid ſiege to that town. Frederic, unable to ſend a ſufficient body of troops to its relief, applied for additional ſuccours to Charles the Seventh, King of France; who, as well with a view of diſſolving the council of Baſle as for the particular purpoſe required, ordered a conſiderable army to march, under the command of his ſon Louis. Accordingly the Dauphin entered with his forces into Alſace, and after laying waſte and haraſſing the adjacent provinces, appeared before Baſle. Upon this occaſion, a detachment of fifteen hundred Swiſs from the army of the confederates (at that time employed in beſieging Farnſpurg) were ordered to throw themſelves into the town of Baſle, which was but ſlightly garriſoned.

This handful of men advanced without interruption to the plain of Brattelen, where they charged, with ſuch determined and well-conducted valour, eight thouſand of the enemy's cavalry, as to drive them back to Muttenz, at which place the repulſed were joined by another corps; but, notwithſtanding this reinforcement, the Swiſs renewing

* Baſle was the firſt canton which ſeparated from the old Helvetic confederacy, and adopted the new conſtitution fabricated in France. Its ſituation near the frontiers expoſed it to the intrigues of the French agents, and without foreign ſupport rendered it incapable of reſiſtance. The peaſants of the canton were likewiſe diſſatisfied with the monopoly of power and commerce veſted in the burghers of the town; encouraged by the French, and excited by their own turbulent demagogues, they peremptorily required emancipation and independence. The magiſtrates could only lament in ſecret the progreſs of diſaffection, and were compelled to ſubmit without a ſtruggle; the French having over-run the biſhopric of Baſle, and annexed it to their own dominions, claimed the epiſcopal palace as ſucceeding to the rights of the biſhop, and under that pretence introduced a corps of troops into the town.

The progreſs of the revolution in this canton was almoſt inſtantaneous: the peaſants roſe in different diſtricts, demoliſhed the caſtles of the bailiffs, planted on the 18th of January, at Liechſtall, the firſt tree of liberty, and ſent deputies to Baſle with their declaration of rights, which they ſtyled Magna Charta. The magiſtrates acceded to their demands, admitted 600 militia into the town, and recalled their deputies from Arau. On the 24th the tree of liberty was planted at Baſle, and on the 5th of February the old magiſtrates reſigned their authority, and ſixty delegates, appointed by the people, were inveſted with a proviſional government, until the new conſtitution ſhould be conſolidated. Thus the magiſtrates of Baſle were firſt compelled to ſet the fatal example of a ſeparation from the Helvetic Union; an example which was ſoon followed by the other parts of the confederacy.

the assault with fresh intrepidity, forced them to repass the river Birs, where the main body of the army was chiefly drawn up. Such was the firmness and solidity of the Swiss in these several rencounters, that, to use the expression of an old French chronicle, when the cavalry charged "they could make no more impression than if they had attacked a rock, or an impenetrable wall." The Swiss, encouraged by this wonderful success, and exasperated with the most spirited indignation against the invaders of their country, disregarded the remonstrances of their officers, and rashly attempted to force their passage over a bridge which was guarded by a large body of the enemy; but this effort of inconsiderate valour proving ineffectual, these gallant soldiers, throwing themselves into the river, gained the opposite shore, in the face of a battery of cannon that was playing against them.

What could the desperate courage of so small a number avail against an army of thirty thousand men advantageously posted in an open plain? They had no alternative but to throw down their arms, or gloriously expire. They bravely preferred death: five hundred took possession of a small island near the bridge, and, after resolutely defending themselves to the last extremity, were cut to pieces. A like number forced their way through the ranks of the enemy, and marched towards Basle; when they were opposed by a large body of horse, posted to prevent the inhabitants of the town from sallying to the relief of their countrymen. Being now surrounded on all sides, they threw themselves into the hospital of St. James, and, lining the walls of the burying-ground, resisted for some time the united assaults of the whole French army. At length the hospital being set on fire, and the cannon having battered down the walls of the burying-ground, they fought no longer in hopes of victory; but still resolving to sell their lives as dear as possible, they continued to defend themselves to the last gasp.

Æneas Sylvius (afterwards Pope Pius II.) relates, among other actions of singular valour exerted by this heroic troop, a particular instance which I cannot forbear mentioning. Four French soldiers assaulted a single Swiss, and having killed and stripped him, proceeded to insult the corpse: one of his companions, incensed at this brutal action, seized a battle-axe, rushed upon the four, slew two of them, and drove the others to flight; then flinging the dead body of his friend upon his shoulders, carried it to a place of security; and returning to the attack, fell by the hand of the enemy.

Of the whole number but sixteen escaped from the field of battle; and these, agreeably to the old Spartan discipline, were branded with infamy, for not having sacrificed their lives in defence of their country. Among those who were desperately wounded, and left upon the field, only thirty-two were found alive. The names of many of these glorious combatants were registered, and still remain upon record.

It is not easy to ascertain the number of forces on both sides in this ever-memorable engagement. As far as we can judge, by comparing the several relations of the French and German historians, the army of the Dauphin consisted of at least thirty thousand. Charles and his son Louis, in their Letters to the German princes on this occasion, assert, that three thousand Swiss fell on the field of battle; and perhaps that account is not much exaggerated. With respect to the slain on the side of the Dauphin, the amount is still more uncertain: his loss, however, must have been very considerable, for he remained three days upon the field of battle; and, the better to conceal the number of the killed, ordered the dead bodies to be secretly interred in different parts of the neighbourhood. He was effectually prevented from prosecuting his designs upon Switzerland, and compelled to retire with his shattered army into Alsace. Louis himself, indeed, declared, that such another victory would ruin his army; and generously confessed, that he derived from it no other advantage, than to know and esteem the valour of the Swiss. Accordingly, this combat may be considered as forming a re-

markable æra in the hiſtory of the Swiſs: for it gave riſe to their treaty with Charles the Seventh; the firſt alliance which they contracted with France.

The war, however, between the Houſe of Auſtria and Zuric on one ſide, and the ſeven cantons on the other, continued until the year 1446, when a peace was concluded by the mediation and deciſion of certain arbiters: Zuric renounced its connection with the Houſe of Auſtria; and the Helvetic Confederacy was again ſolemnly renewed and confirmed between the eight cantons. Upon this occaſion two very important articles in the public law of Switzerland were finally ſettled: firſt, that all diſputes between any particular cantons ſhould be decided by the mediation of the neutral cantons; and if either of the two contending parties ſhould decline to acquieſce under their judgment, the neutral cantons are empowered to have recourſe to arms, in order to compel the recuſant to abide by their determination; ſecondly, notwithſtanding the right which either of the cantons might have reſerved to itſelf, of contracting alliances with foreign powers, yet the other confederates are to judge whether ſuch alliance is contradictory to, or incompatible with, the articles of the general union; and if it ſhould appear to be ſo, it is declared null and void.

The Swiſs ſtill talk of this famous action with the warmeſt enthuſiaſm. Accordingly, the inhabitants of Baſle form parties every year, to an inn ſituated near the hoſpital and burying ground, in order to commemorate, in a red wine produced from ſome vineyards planted on the field of battle, the heroic deeds of their brave countrymen, who ſo glorioufly ſacrificed their lives. This wine, which they call the "*Blood of the Swiſs,*" is highly prized by the Baſileans, though it has little to recommend it in point of flavour; nevertheleſs, I am much miſtaken if that line of Horace,

Non miſſura cutem niſi plena *cruoris.*

was more applicable to the teazing poet he mentions, than it is to thoſe jovial patriotic parties, at the anniverſary compotations of the "*Blood of the Swiſs.*"

Near Baſle are the ruins of *Auguſta Rauricorum*, formerly a large town under the dominion of the Romans, now a ſmall village in the canton of Baſle, cloſe to the Rhine. Its ancient remains are very inconſiderable, conſiſting of a few columns of marble, ſtill ſtanding, and ſome ſcattered fragments of pillars, together with a ſemicircular range of walls upon a riſing ground, the greater part of which has fallen, and is almoſt overgrown with under-wood. From the preſent appearance of the ruins I ſhould hardly have conjectured that they once compoſed part of a theatre, capable of containing above twelve thouſand ſpectators. But the celebrated Schæfflin has given, in his *Alſatia Illuſtrata*, a particular deſcription of this theatre, and of the temple, to which the marble columns formerly belonged. I noticed alſo the remains of ſome ſmall aqueducts, which conveyed water to the town from the diſtance of above twelve miles; but none of theſe ancient relics are ſufficiently remarkable to merit the trouble of a particular viſit.

The peaſants, in turning up the ground, frequently find medals of the Roman Emperors, from Auguſtus to Conſtantine; and are become, by experience, able to diſtinguiſh, with ſome degree of preciſion, thoſe that are rare from the common coins. I purchaſed of a labourer two medals which he had juſt found; a Trajan and an Albinus; and though the former was by far the moſt perfect, yet he exacted three times as much for the latter, becauſe he had never ſeen it, he ſaid, before.

From Baſle I made an excurſion to Mulhauſen, a town in alliance with the Swiſs cantons; which, though ſituated at the diſtance of ſeveral miles from the frontiers of Switzerland, and entirely encloſed within the dominions of France, is yet conſidered

and reſpected as a part of the Helvetic Confederacy; and entitled to all the privileges enjoyed by that body.

Mulhauſen ſtands in Sundgau, a diſtrict of Alſace, about fifteen miles from Baſle; in a fertile plain, at the bottom of a ridge of hills, and at ſmall diſtance from the Voſges. The walls of the town encloſe a circumference of not more than two miles, and its whole territory is compriſed within a precinct of eight miles.

This little republic maintained its privileges, which had been granted by the Emperors during the times of feudal tyranny, by contracting an alliance, at different intervals, with Baſle, Straſburgh, and the towns of Alſace and Suabia; and afterwards, in the middle of the fifteenth century, with Bern, Friburgh, and Soleure. At length, in 1515, it was received into the Helvetic Confederacy; which league has preſerved its liberty and independence from the encroachments of the empire, on one hand, and, on the other, from the attacks of France. The inhabitants are of the reformed religion. The town contains about eight hundred houſes, and ſix thouſand ſouls, and there are two thouſand ſubjects in the villages within its little territory. Mulhauſen owes its preſent flouriſhing ſtate to its manufactures, which conſiſt principally of printed linen and cottons.

The government is ariſto-democratical. The ſupreme power reſides in the Great and Little Councils, conſiſting both together of ſeventy-eight perſons, and drawn from the burghers, whoſe number amounts to ſeven hundred, diſtributed into ſix tribes.

Mr. Koehlin's commercial ſchool deſerves to be mentioned. It is a private inſtitution for about thirty ſcholars, who are inſtructed in the German, French, and Latin languages; in fencing, dancing, and all polite accompliſhments; and more particularly in accounts and book-keeping. The expence, including an uniform, amounts to £50 per annum. The plan is very judicious, and the whole appeared to be well conducted *.

LETTER XVIII.—*Biſhopric of Baſle.—Porentru.—Abbey of Bellelay.—Arleſheim.—Delmont.—Valley of Munſter.—Pierre Pertuis.—Valley of St. Imier.*

ALTHOUGH great part of the dominions ſubject to the Biſhop of Baſle, or, as he is called by the Proteſtants, the Prince of Porentru, is not compriſed within the limits of Switzerland; yet as, till lately, he was in alliance with the Catholic cantons, and as many of his ſubjects, even in thoſe diſtricts which lie within the German empire, are comburghers with Bern, and under the protection of that republic, his territory is uſually included in all the topographical accounts of Switzerland. It merits alſo the notice of the traveller for its romantic ſcenes, of the mineralogiſt for the variety of its petrifactions and foſſils, and of the politician for the peculiarity of its government, and the numerous and complicated immunities of the people.

Having made various excurſions into this country, I ſhall lay before you a general account of its political ſtate, and a particular deſcription of thoſe parts which I had an opportunity of viſiting.

The biſhopric of Baſle may be claſſed under two general diviſions: the firſt lies to the ſouth of Pierre Pertuis, and forms a part of Switzerland; the ſecond, to the north of the ſame boundary, includes that diſtrict ſituated within the German empire.

* Mulhauſen is no longer an ally of the Helvetic Body. In 1798 it ſurrendered to the French, after a blockade of two years, and was incorporated with the French Republic.

The

The ſovereign is choſen by the chapter of eighteen canons, reſident at Arleſheim, and confirmed by the Pope. He is prince of the German empire, and does homage to the Emperor for that part of his territory which lies in the circle of the Upper Rhine. He was always conſidered as an ally of the Swiſs, by his union with the Catholic cantons, firſt formed in 1579, and renewed at different intervals, particularly in 1671 and 1697; and, by being included in the treaty which thoſe cantons contracted with France in 1715. But as he was not compriſed among the allies of the Swiſs, in the league between the thirteen cantons and Louis the Sixteenth in 1777, he can at preſent ſcarcely be deemed a member of the Helvetic Confederacy.

The firſt particular alliance with France was concluded in 1739, between the Biſhop and Louis the Fifteenth, and was renewed in 1780. By virtue of this treaty the Biſhop has troops in the French ſervice; and his ſubjects enjoy all the privileges which are granted to the natives of the thirteen cantons.

In caſe of a rupture between France and the empire, he is bound to remain neuter. But this neutrality did not in 1675 prevent the French troops from being quartered in his dominions, as forming part of the empire; and they were only removed at the interceſſion of the Catholic cantons. If a miſunderſtanding ſhould ariſe between France and the Emperor, the Biſhop's ſituation would be extremely embarraſſing; as his doubtful connection with the Swiſs would ſcarcely preſerve his territory from being invaded by one of thoſe two powers.

The form of government is limited ſovereignty: the Biſhop being bound, on all important occaſions to conſult his chapter; and his prerogative being confined by the great immunities enjoyed by his ſubjects in general, and particularly by thoſe of the Reformed communion. He nominates to all employments, both civil and military, and appoints the bailifs or governors; criminal juſtice is adminiſtered in his name, and he has the power of pardoning. In civil proceedings, he receives an appeal from the inferior courts; but in his German dominions, when the cauſe exceeds the value of a ſtipulated ſum, it may be carried to the chambers of Wetzlar or Vienna.

The ſubjects of the biſhop are partly Proteſtants and partly Catholics. The Proteſtants, of whom a more particular account will be given, inhabit the greater part of the valley of Munſter, and the whole diſtrict of the ſouth of Pierre Pertuis, and are about 15,000; the Catholics amount to 35,000.

The French and German languages being both ſpoken in the biſhop's dominions, ſeveral places have two names, that ſcarcely reſemble each other; namely, *Munſter* and *Moitier*, *Dachfield* and *Tavannes*, *Delmont* and *Delſberg*, *Corrandelin* and *Rennendorf*, *Elay* and *Scehof*.

Porentru, capital of the biſhop's dominions, and his principal reſidence, is ſituated in the bailliage of Elſgau, about three miles from the frontiers of France. It is a ſmall but neat town; and its poſition, in an oval plain, ſurrounded by well-wooded hills, and watered by a ſerpentine rivulet, is exceedingly pleaſant. The epiſcopal palace, which has been lately repaired and augmented, ſtands on an eminence overlooking the town, and the environs fertile in corn and paſture. One of the towers, built of ſtone, and ſaid to be of Roman workmanſhip, ſtill remains a monument of its antiquity.

The highways, which lead from all quarters to Porentru, and have been formed at a conſiderable expence, do honour to the ſovereigns of this country. The road to Bellelay and Bienne is a magnificent cauſeway; is carried upon hanging terraces; through "twilight groves," and along continued aſcents and declivities. I paſſed it by moonlight; and the reflection of the rays quivering through the thick foliage was inconceivably beautiful.

Bellelay

Bellelay, which I viſited in my journey from Bienne to Porentru, is a rich abbey of Benedictines, about twenty miles from the capital, in a ſolitary but not unpleaſant ſituation, ſurrounded by mountains, and ſheltered by foreſts. This abbey is not merely confined to religious purpoſes; the late abbot, Nicholas de Luce, having inſtituted a military academy for the young nobility and gentry. For this purpoſe he erected a large building near the abbey, and provided ſuitable maſters and profeſſors. When I was there, the number of ſcholars amounted to forty. They are inſtructed in various branches of polite literature; they wear uniforms; and are trained to military manœuvres and exerciſes. The cheapneſs of this ſchool, and its diſtance from the diſſipation of large towns, render it of great public utility. The whole expence of each ſcholar, for his board, lodging, inſtruction, and various leſſons, ſcarcely exceeds £20 *per annum*. It is curious to find a military academy eſtabliſhed in the midſt of rocks and foreſts, and within the walls of a convent; and to obſerve Benedictine friars, inſtead of waſting their time in monkiſh ignorance, rendering themſelves beneficial to ſociety.

The chapter, compoſed of eighteen canons, who, upon a vacancy in the ſee, poſſeſs the right of electing the biſhop, was fixed at Friburgh in Briſgau from the period of the reformation, which drove them from Baſle, to 1677, when Friburgh was occupied by the French troops. In the following year the chapter was transferred to Arleſheim, where it now reſides. The vacant canonries are filled alternately by the pope and chapter.

On the 14th of Auguſt 1786, I made, in company with ſeveral friends, an excurſion to Arleſheim, which is a ſmall but pleaſant place, almoſt four miles from Baſle. We had the honour of dining with the Baron de Ligertz, one of the canons. After a repaſt, no leſs elegant than agreeable, our hoſt politely accompanied us to a garden ſtyled The Hermitage, about a quarter of a mile from Arleſheim; which was laid out at the joint expence of the Baron and of Madame d'Andlau, the bailif's lady, with a view to employ the poor in a time of great ſcarcity, and to provide walks for the inhabitants of the town; the grounds are very extenſive and pleaſant. The walks are carried along the ſides of the rocks, which are richly wooded, and through a delightful ſemicircular plain; bounded by fertile hills, and watered by a ſmall lake, the borders of which are peculiarly wild and picturesque. Several caverns, hollowed and arched by the hand of nature, add to the romantic ſingularity of the ſcenery; while many tranſparent ſtreams, conveyed from a conſiderable diſtance, fall in ſmall caſcades, or bubble from the ground like real ſprings. A faſtidious obſerver might perhaps remark of this enchanting ſpot, that in a few circumſtances nature has been too much ſacrificed to art; and that there are ſome buildings leſs calculated to pleaſe than to ſurpriſe.

An elegant inſcription for this charming hermitage was extemporarily compoſed by profeſſor Oberlin of Straſburgh, one of our party.

HOSPES·AMICE·
HASCE·DELICIAS·
NATURÆ·DEBES·
DEBES·INDUSTRIÆ·
BALBINÆ·AB·ANDLAV·
HENRICI·A·LIGERTZ.

I ſhall cloſe this letter with an account of my journey from Baſle to Bienne, through the vallies of Lauffen, Delmont, Munſter, and St. Imier, a tract of country in the biſhopric of Baſle, which is not inferior in beauty to the moſt delightful parts of Switzerland.

We

We quitted Baſle early in the morning, and paſſed through a fertile plain watered by the Birs, and bounded by two chains of the Jura; one whereof terminates abruptly, ſupporting on its ſummit the caſtle of Wertenburgh. As we continued our route, the plain gradually narrowed, the mountains approached each other, and we entered the rich valley of Lauffen, encloſed between the rocks, ſprinkled with groves of oak and beech, and exhibiting many romantic points of view. Lauffen, which gives name to the valley, has its own magiſtrates, and inferior courts of juſtice. The natives are induſtrious: thoſe who are not employed in agriculture gain a comfortable livelihood from making cloth, ſpinning yarn, and knitting worſted ſtockings. The inhabitants of the valley talk German, and thoſe of Sautier, a ſmall neighbouring village, French; which language is ſpoken through the vallies of Delmont, Munſter, and St. Imier.

About three leagues from Lauffen we came to a narrow paſs, entered the valley of Delmont, near Sautier; quitted the high road, and gently aſcended to Delmont, which ſtands pleaſantly on an acclivity, backed by a ridge of rocks embrowned with firs.

In this ſmall town reſide the provoſt and canons, who compoſe the chapter formerly eſtabliſhed at Munſter; which was removed here, in 1630, on the introduction of the Reformed religion into the valley of Munſter. At the extremity of the town is the epiſcopal palace, built, in 1718, by Conrad Baron of Reinach, and biſhop of Baſle: it commands a fine view of the adjacent country. The bailif, who holds his court in this town, has juriſdiction over the vallies of Delmont and Munſter. In criminal proceedings he arreſts and examines, and can inflict ſmall penalties for trifling miſdemeanors; but in all caſes of notoriety, the delinquent is either tried at Porentru, or the bailif's ſentence muſt be confirmed or amended in that ſupreme tribunal. Civil cauſes are firſt adjudged in the provincial courts; from whoſe deciſion an appeal lies to the epiſcopal tribunal at Porentru, and from thence to the imperial chambers of Wetzlar or Vienna. Delmont contains eight hundred inhabitants, who are all Catholics: they have their own magiſtrates and inferior tribunals.

About a mile from Delmont I ſtopped at Corrandelin, a ſmall village in the Catholic diſtrict of the valley of Munſter, in order to examine an iron foundery belonging to the biſhop. The ore is drawn from the valley of Delmont, near the villages of Corou, Wick, Recolens, and Sepres; it is taken from the ground in ſmall pieces, ſeldom larger than a pea. The director informed me, that it is uſually found in that ſtate, and very rarely in maſſes. The largeſt maſs he ever remembered to have ſeen was ten feet long, two thick, and two broad. He added that the mountains in the neighbourhood abound with ore, which would yield conſiderable quantities of iron, if ſufficient charcoal could be procured for the furnaces. As he was but lately appointed director, he could not give any accurate intelligence concerning the annual quantity of iron ſmelted in this foundry; but informed me, in general, that the different ores yielded altogether two thirds of pure mineral, the quality whereof was extremely fine, and ſcarcely inferior to the beſt ſort exported from Sweden.

Corrandelin, together with the villages of Chatillon, Roſſemaiſon, Vellerat, Courchappois, Corbaon, Mervellier, and Elay, though connected, in regard to eccleſiaſtical affairs, with the valley of Delmont, form that part of the valley of Munſter, which is called the *Catholic*, or *Lower* Diſtrict. It is denominated the *Catholic* Diſtrict, becauſe the inhabitants are excluſively of the Romiſh church; and *Lower* Diſtrict, becauſe it is ſituated *unter den felſen*, or *below* the ridge of rocks which ſeparate it from the *Upper*, or *Proteſtant* Diſtrict. Before I proceed further, it will be neceſſary to deſcribe the general diviſions of this valley, and the civil and religious immunities of the

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natives, that you may be enabled to comprehend its complicated topography and curious political ſtate, by which, though ſubject to the biſhop of Baſle, it is under the protection of the canton of Bern.

The valley of Munſter, or Moitier, extends from the valley of Delmont to Pierre Pertuis; and is included in that part of the biſhop's dominions which lie within the German empire. But, as the inhabitants have, for above three hundred years, been under the protection of Bern, the valley is conſidered by many authors as forming part of Switzerland. It is divided into two principal diſtricts; the *Catholic* or *Lower* Diſtrict, which lies at the extremity of the valley of Delmont, and comprizes the eight villages above mentioned; the *Proteſtant* or *Upper* Diſtrict, which ſtretches from the chain of rocks near Corrandelin, to Pierre Pertuis, its ſouthern boundary; and containing, 1. The Greater Valley, or Valley of Tavannes; and 2. The Leſſer Valley, which is ſubdivided into Grand-Val, or the Great Valley, and the Little Valley, or the Valley of Sornetan.

The inhabitants of both diſtricts are comburghers with the canton of Bern. The firſt treaty of comburgherſhip was contracted in 1484. In that year, Bern and the biſhop of Baſle reſpectively ſupporting two candidates for the provoſtſhip of Munſter, the former took poſſeſſion of the whole valley, and exacted homage from the inhabitants. Theſe diſputes being compromiſed at the treaty of Corrandelin, Bern reſtored the valley to the biſhop on the following conditions: that the inhabitants ſhould be maintained in all their privileges; continue as comburghers with Bern, under the protection of that republic; remain neuter in caſe of a war between Bern and the biſhop; and follow the ſtandard of Bern, when engaged in hoſtilities againſt any other power. This treaty of comburgherſhip, renewed at different intervals, has excited frequent diſputes between Bern and the biſhop, and particularly in 1705 and 1711 occaſioned an open rupture. Theſe diſputes were finally adjuſted at the pacification of Arau; when the biſhop ratified the treaty of comburgherſhip, confirmed all the rights and immunities of the inhabitants, and conſented to the mediation and interference of Bern.

The affairs of religion excited for ſome time no leſs conteſt between the biſhop and Bern, than the treaty of comburgherſhip. The reformation being adopted, in 1531, by a conſiderable number of the inhabitants in the valley of Munſter, civil commotions enſued; Bern interfered in behalf of the Proteſtants, and the biſhop protected the ancient church eſtabliſhment. It was at length amicably ſettled between both parties; that the majority of each pariſh ſhould freely decide, whether the inhabitants ſhould profeſs the Roman Catholic or the Reformed religion; and that the chapter of Munſter ſhould continue to receive the tythes, on condition of diſcharging the ſalaries of the Proteſtant miniſters. In conſequence of this rational compromiſe, the eight villages, which now form the *Lower* Diſtrict, voted for the maintainance of the Catholic religion; and the pariſhes of the upper diſtrict for the Reformed church. Accordingly the two perſuaſions were reſpectively eſtabliſhed in theſe two diſtricts; the chapter retained its eſtates and tythes, and quitting Munſter, where the new doctrines were admitted, retired firſt to Soleure, and afterwards ſettled at Delmont: but, as ſeveral Proteſtants and Catholics continued promiſcuouſly to inhabit the two diſtricts, diſturbances were occaſionally renewed. Nor were the religious differences entirely compoſed till the peace of Arau; which enjoined, that all the members of the two perſuaſions ſhould be finally ſeparated; that all the inhabitants of the *Upper* Diſtrict, who then profeſſed or ſhould hereafter profeſs the Catholic religion, ſhould retire to Elay; and that, in the ſame manner, the Proteſtants in the *Lower* diſtrict ſhould remove to the *Upper* diſtrict. Since this period, the moſt perfect harmony has ſubſiſted between them.

By virtue of the alliance with Bern, that republic annually deputes one of its magiſtrates and an eccleſiaſtic to this valley. The magiſtrate enquires if the civil and religious immunities have been preſerved inviolate; the eccleſiaſtic who is called inſpector of the churches in the valley of Munſter, examines into the ſtate of church diſcipline, and diſtributes among the inhabitants of the *Upper* diſtrict catechiſms and pſalters. Bern alſo approves the nomination of the miniſters to the vacant benefices, ſome of whom are appointed and paid by the biſhop, others by the chapters of Delmont and Bellelay; as the biſhop or chapters poſſeſs the tythes in the reſpective pariſhes.

Soon after quitting Corrandelin, I entered the *Proteſtant* diſtrict, through a paſs between two rocks, which nearly approach each other, and juſt leave an opening ſufficient for the river Birs and the road, and continued along a narrow glen, about four miles in length. The road winds above the impetuous Birs, and at the bottom of rocks of white limeſtone, of inacceſſible height, and though in moſt places abſolutely perpendicular, yet agreeably feathered with trees, particularly towards their ſummits, which over-hang, and ſcarcely admit the light of the ſun. In the midſt of this glen is La Roche, the firſt Proteſtant village in the valley of Munſter; the houſes ſtand on both ſides of the Birs, where the rocks recede a little, and preſent a gentle ſlope.

On iſſuing from this glen, we entered a fertile plain encircled by hills, in the midſt of which is ſituated the village of Munſter or Moitier: it takes that appellation from the chapter of canons, who, upon the reformation, quitted this place of their reſidence, and ſettled at Delmont.

About half a mile from Munſter we came into another glen, near three miles in length: it is called *Chaluet*, of a ſimilar nature with that which we traverſed between Corrandelin and the plain of Munſter, but ſtill wilder and more craggy, deeper, and more obſcure. It is alſo divided by the Birs, which ruſhes through it with great impetuoſity; and is ſo narrow, that the road occupies the whole ſpace between the torrent and the mountain, and the wheels of our carriage frequently on one ſide bruſhed the rock, and on the other ran cloſe to the precipice which overhangs the river. This cauſeway, over broken crags and ſteep precipices, does honour to the prince who carried it into execution. An inſcription, which I obſerved near a bridge in the midſt of this obſcure glen, may perhaps ſeem exaggerated to a perſon unacquainted with the natural impediments of the country; but to me on the ſpot appeared ſtrictly conſonant to truth:

Joſephus Gulielmus
Ex Rinchnis de Baldenſtein
Baſilienſium Epiſcopus Princeps
Viam Veteribus Incluſam
Rupibus et Clauſtris Montium Ruptis
Birſâ Pontibus Stratâ
Opere Romanis Digno
Aperuit.
Anno. D. M.DCC.LII.

Although in various parts of Switzerland I had frequently obſerved the juſtneſs of the remark, that in all deep vallies which interſect the mountains, the ſalient angles on one ſide alternately correſpond with the cavities on the other; and that parallel ſtrata of rock anſwer to each other, in all directions and at all heights; yet I never ſaw this fact more ſtrongly exemplified than in the two ridges of lime-ſtone bordering this glen.

They are of a ſtupendous height; and the ſtrata horizontal, inclined, or almoſt perpendicular on one ſide, are exactly ſimilar and of the ſame thickneſs on the other: a circumſtance which, joined to the correſponding ſituation of the angles, ſeems to prove, that they were formerly united, and either rent aſunder by a ſudden convulſion, or ſeparated by the gradual attrition of the waters.

At the extremity of the Chaluet we entered another plain, well cultivated, and agreeably ſpotted with villages; and arrived towards the cloſe of the evening at Molleray, where we paſſed the night. The people appear happy and contented, and are extremely induſtrious. The greater part are employed in agriculture; a few, encouraged by their neighbours of Locle and Chaux de Fond have lately introduced ſeveral trades into theſe mountains; and Belleval, a ſmall neighbouring village, already contains five watchmakers.

From Molleray we continued along a fertile plain by the ſide of the Birs; through ſeveral pleaſant and well-looking villages, of which Tavannes, in German *Dachfeld*, is the largeſt. In about two miles we arrived at the extremity of the plain, which is cloſed by a rock, through which opens the celebrated paſs called *Pierre Pertuis*. At the bottom of this rock, the Birs burſts from the ground in ſeveral copious ſprings, and turns two mills within a few paces of its principal ſource.

Pierre Pertuis is a large arched aperture through a ſolid rock, about thirty feet long, forty-five broad, and thirty high in the loweſt part, which ſome aver to have been formed by nature, others by art. A Roman inſcription over the arch, extremely defaced, has given ſufficient employment to the ingenuity of antiquaries. Having ſeen ſeveral fac-ſimiles, greatly differing from each other, I copied it as exactly as the height would permit.

AVMINI AVGS.
'M
CTA PER
O \ VM PATER.
IVI COL. HELV.

Of this inſcription many ſolutions have been attempted; but the moſt probable are the two following:

Numini Auguſtorum via facta per Titum dumnium Paternum II *virum Colon Helvet.*— Others read, *per montem durvum Paternus.*

Both theſe ſolutions imply, that a road was formed through the mountains by Paternus, a duumvir, during the reigns of Marcus Aurelius and Venus. From the latter explanation, *per montem durvum*, ſome antiquarians have endeavoured to prove, that he cut through the rock; and conſequently, that the arch is the work of art, not of nature: while others maintain, that it by no means follows, even from this reading, that the rock was pierced by order of Paternus: but merely that the road was carried through the rock *. On examining the inſcription with attention, the words which antiquarians have ſupplied, to ſupport their particular ſyſtems, are extremely doubtful; and to me, who obſerved the arch without partiality to any hypotheſis, it appeared to have been originally a great cavern, either totally formed by nature, or, if aſſiſted

* The reader, who wiſhes to examine this ſubject with attention, is referred to Schæfflin's *Alſatia Illuſtrata*, and to a diſſertation on the ſubject publiſhed by Buxtorf.

by

by art, that only a ſmall part of its ſouthern extremity was opened by the labour of man.

The ſouthern extremity of *Pierre Pertuis* leads into the valley of St. Imier, ſometimes called Enguel, which compriſes the biſhop's dominions lying in Switzerland. The inhabitants are Proteſtants, and governed by a bailif appointed by the biſhop. He reſides at Courtelari; but his authority is exceedingly limited by the various privileges, both civil and religious, poſſeſſed by the natives. Their religious immunities, confirmed by the biſhop, are guaranteed by the four reformed cantons. The whole diſtrict lies within the Jura mountains, and is fertile in paſture; the inhabitants are induſtrious.

On arriving at the extremity of mount Jura, a ſudden proſpect burſt upon our view, commanding the undulating country fertilized by the Aar, backed by that majeſtic chain of Alps which extends beyond the frontiers of Savoy. Deſcending gently into the plain with this glorious proſpect before us, and which was heightened by the luminous ſplendour of the mid-day ſun, we croſſed the Sure, and finiſhed our delightful expedition at Bienne.

From Pierre Pertuis to Bienne, a ſuperb cauſeway is carried along a continual deſcent for ſix miles; it winds through thick foreſts, and overhangs the deep abyſs, in which the Sure, a turbid and impetuous torrent, precipitates its courſe, always roaring, and frequently unſeen, in its rocky channel *.

LETTER

* The whole biſhopric of Baſle is now annexed to France. In 1792 their troops overran the country of Porentru, or the German part, under the pretence of delivering the natives from ſlavery, and took poſſeſſion of the famous paſs of Pierre Pertuis. This diſtrict was ceded to France by the treaty of Campo Formio, and is formed into the department of Mont Terrible.

In December 1798 the Helvetic part of the territory was entered by the French general St. Cyr; he took poſſeſſion of it in the name of the republic, declaring that France ſucceeded to the property, dominions, rights, and prerogatives of the biſhop.

This diſtrict was alſo annexed to the department of Mont Terrible; and the proclamation of Mengaud to the unoffending natives, which ſubjected their country to the dominion of France, is a combination of arrogance, inſult, and mockery.

"Peace and ſafety to all his friends! Mengaud, Commiſſary of the Executive Directory, to the inhabitants of all the countries not yet occupied by the French republic, dependencies upon the old biſhopric of Baſle, on the left bank of the Rhine.

"Citizens!

"The re-union of a part of the old principality of Porentruy, equally decided the incorporation of your country with the French republic.

"This proceeding of France is that of a free people, ſubſtituted to the rights of a government againſt Nature, which overwhelms you. And becauſe the exerciſe of thoſe rights, become ours, did not ſooner take place, by purging them of all that is incompatible with the dignity of man, it does not follow, that we have forgotten that you are ſtill in chains. We come to break them.

"Happier than your fathers, whoſe blood flowed in the wars which founded the different ſpecies of government in Switzerland, and which have only bequeathed you a burthenſome and degrading exiſtence, you are at length going to enjoy the bleſſings of Providence, who only created men to make them members of one and the ſame family.

"You knew nothing but tithes, *corvées*, &c.; you had only prieſts, nobles, and privileged perſons: your commerce, your induſtry, your arts, in ſhort your very ſubſiſtence, all bore the ſtamp of the ſacerdotal deſpotiſm ſo dexterouſly combined with a no leſs odious tyranny. Now you are men: liberty and equality will no longer permit among you any other diſtinction than that of merit, talents, and virtue. Called all indiſcriminately to the helm of the ſociety, in the ſupport and ſafety of which you are all equally intereſted, your ſubſiſtence will in future be ſecure, the granaries of the French republic being the property of all its children. Your trade, encouraged within, protected without, will no longer be ſhackled. Induſtry, the arts, agriculture, will receive encouragements to be expected only from a nation victorious, free, powerful, and generous, enlightened on the nature of rights, and on the manner of exerciſing them.

"Learn to appreciate theſe advantages, and merit them by turning a deaf ear to the intereſted and treacherous inſinuations of the evil-minded, and fools, who endeavour to depreciate them, and to miſlead you.

LETTER XIX.—*The town of Bienne.*

THE ſmall territory of Bienne, containing ſcarcely ſix thouſand inhabitants, lies between the lake and a chain of the Jura mountains; it is ſurrounded by the cantons of Bern and Soleure, the Biſhopric of Baſle, and the principality of Neuchatel. The town is ſituated at the foot of the Jura, and at a little diſtance from the lake; which is here about nine miles in length, and four in breadth: the borders are pleaſing and picturesque; and the town of Nidau forms a very beautiful object upon its eaſtern ſide.

The Biſhop of Baſle is the ſovereign of this little ſtate: his power, formerly conſiderable, is at preſent exceedingly limited. Indeed the conſtitution of Bienne is of ſo very peculiar a nature, that I know not well by what name it can be diſtinguiſhed: it cannot properly be called either a limited monarchy, or an independent republic; but ſeems rather to be a mixed government, partaking ſomewhat of both.

The Biſhop of Baſle receives, upon his promotion to the ſee, the homage of the citizens and militia of this town, with all the apparent ceremonials of the moſt abſolute ſubmiſſion; but at the ſame time he confirms, in the ſtrongeſt manner, all their privileges and franchiſes. He is repreſented by a mayor of his own appointing, whoſe power and office conſiſt in convoking, and preſiding in, the Little Council, as the chief court of juſtice; in collecting the ſuffrages, and declaring the ſentence; but without giving any vote himſelf. And, although juſtice is carried on, and executed, in the name of the biſhop, yet neither that prince nor the mayor has the prerogative of pardoning criminals, or of mitigating the ſentence. All cauſes, civil as well as criminal, are brought before this council in the firſt inſtance; and, in more important proceedings, an appeal lies to the Sovereign Council: in both caſes, each party chooſes a member of the council to act as his advocate; which office he is obliged to diſcharge without fee or recompence.

The ſovereign's revenue amounts only to about £300 a-year; but mean as his civil liſt is, it is ſtill more conſiderable than his power; for he does not poſſeſs the leaſt ſhare of the adminiſtration. The legiſlative authority reſides in the Great and Little Councils combined: the former conſiſts of forty members, and the latter, in which the executive power is veſted, is compoſed of twenty-four; the members of each muſt be married men. Both theſe councils elect their reſpective members; ſo far the conſtitution is entirely ariſtocratical. The burgomaſter or chief of the regency, is choſen by the two councils, and preſides at their meetings; he continues in office during life; but he, as well as the ſeveral magiſtrates, muſt be confirmed annually by the two councils. The ſalaries annexed to theſe poſts are exceedingly moderate, and indeed the general expences of government are ſo very ſmall, that, in proportion to them, its revenues may well be conſidered as abundantly ample.

It appears, therefore, that this Proteſtant republic, notwithſtanding the ſovereignty of its Catholic biſhop, enjoys in the fulleſt extent the power of impoſing taxes, contract-

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"We come among you as friends. We are your brothers. Do not be afraid of any ill treatment. Perſons and property ſhall be protected, as much as the enemies of liberty ſhall be oppreſſed. The moſt exact and ſtrict diſcipline ſhall be obſerved by the warriors, who never had, nor ever will have, any other enemies than thoſe of liberty. Such are the orders of the Executive Directory.

"MENGAUD, Commiſſioner of the Executive Directory."

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ing alliances, declaring war and peace; and, in ſhort, of exerciſing every other act of abſolute and independent legiſlation. This ſingular conſtitution is guaranteed by Bern, Friburgh, and Soleure, with whom the town is cloſely allied; in conſequence of which, it becomes a member of the Helvetic Confederacy. This alliance between thoſe cantons and the town of Bienne, is of a ſuperior nature to that of the ſame cantons with the Biſhop of Baſle: for the town enjoys the right of ſending deputies to every general diet, ordinary and extraordinary; whereas the biſhop does not poſſeſs the ſame privilege.

The language of the country is a provincial German; but, as the territory borders upon the principality of Neuchatel, the inhabitants ſpeak alſo a corrupted French. They are a very active and induſtrious people; ſeveral manufactures are eſtabliſhed in the town, which, conſidering its ſize, carries on a tolerable trade.

I have often had occaſion to obſerve, that the middling claſs of people in Switzerland are far more intelligent than thoſe of the ſame rank in any other country. Accordingly, I invited laſt night my landlord of the Crown inn to ſup with me; and found him by no means diſpoſed to be a ſilent gueſt. He gave me a long account of the late ceremony, when the citizens did homage to their new biſhop. I was pleaſed to hear him expatiate, with all the enthuſiaſm of national pride, upon the beauty and grandeur of the ſcene; the magnificence of the proceſſion; the number of ſpectators, as well ſtrangers as natives, who were aſſembled; together with the entertainments and balls that were given upon that occaſion. By the lofty terms in which he ſpoke of this proceſſion, you would have imagined, at leaſt, that he had been deſcribing the coronation of the Emperor of Germany, or the King of France; and, in truth, to an inhabitant of Bienne, whoſe government is adminiſtered without the leaſt degree of external pomp, and where luxury has as yet made but little progreſs, the ceremony muſt have appeared a very ſtriking ſpectacle. My hoſt's narrative recalled to my remembrance the accounts of thoſe ancient feudal ſovereignties; when the great vaſſals of the crown did homage to their liege lord; and, while in *terms* they promiſed him unlimited obedience, maintained in *fact*, every eſſential of independence.

I have been amuſing myſelf in ſome pleaſant walks, that lie by the ſide of the lake, which is here prettily ſkirted with country houſes. In my way I paſſed over a plain between the town and the lake, which the Sovereign Council, by a kind of agrarian law that does honour to the legiſlature, lately allotted, in diſtinct portions, to each burgher, for his own particular uſe; and it is entirely laid out in little kitchen-gardens. The general government, indeed, of this miniature ſtate, is well adminiſtered. It has lately adopted the liberal policy of conferring the burgherſhip at an eaſy rate: a wiſe regulation, which cannot fail of increaſing the population of the town, and extending its commerce.

I know your ſentiments much too well, my dear ſir, to apologize for calling your attention in the preſent inſtance, as in ſome others, to theſe diminutive commonwealths. The various modifications of government, into which civil ſociety is divided, is a ſpeculation that will always afford matter both of entertainment and reflection, to a philoſophic mind; and I am perſuaded, that you conſider the meaneſt ſpot of this globe conſecrated by liberty, to be an object worthy, not only of your curioſity, but your veneration *. I am, &c.

LETTER

* Bienne, which forms an important paſs into the Swiſs territories, was occupied by the French on the 8th of February 1798, and annexed to France as ſubject to the Biſhop of Baſle, whoſe rights they aſſumed.

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LETTER XX.—*The town and Canton of Soleure.—Detail of the Government.—Antient and New Burghers.—Aſſembly of the Roſengarten.*

THE direct road from Baſle to Soleure lies through the midſt of the Jura mountains, along the romantic vale of Balſtal, which is remarkable for its fertility. The road from Bienne to Soleure traverſes a well-cultivated valley, watered by the Aar, at the foot of a piked ridge, which forms a branch of mount Jura; its ſides, from the bottom to the ſummit, are ſo embrowned with overhanging foreſts of pine and fir, as to exhibit only occaſional intervals of naked rock, beds of torrents, and a few ſolitary ſpecks of paſture, and are ſo wild and ſteep as, within the extent of five leagues, ſcarcely to diſplay the appearance of a ſingle houſe, or a trace of the ſlighteſt foot-way. Near Soleure this chain of the Jura, called *Weiſſenſtein*, abruptly diminiſhes in heighth, becomes gradually ſloping, and is chequered to the ſummit with fields of corn and paſture.

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in conſequence of having ſeized his territories. It is difficult to decide whether the French accounts of the ſeizure of this little republic, are more burleſque or inſulting:

"20 *Pluvioſe*.—The day before yeſterday, at half paſt four in the afternoon, the French republicans under the command of General Nouvion arrived at the gates of Bienne, and were met by the two councils, who poured forth their vows for the re-union to the great nation. After a ſhort interview, the Republicans entered the town, drums beating and colours flying; and on their arrival at the town-houſe, the general read the proclamation, in the name of the French republic, which produced a ſurpriſing effect. Thoſe who were ſeduced by the oligarchy of Bern were ſtruck motionleſs with aſtoniſhment; but, on recovering their ſenſes, they could not help declaring that Wiſdom herſelf had dictated the proclamation. During a ſpace of four hundred years no troops had been ſeen in the town of Bienne; the impreſſion, therefore, was deeply felt. How glorious is the triumph of virtue and friendſhip!

"The brave General Nouvion has already gained all hearts. His mildneſs, wiſdom, and republican virtue, will make a deeper impreſſion on the Helvetic people than the terrible and always victorious bayonet. I rejoice to hear him exclaim, "Without morals, without virtue, there is no true happineſs!" for, as Racine obſerves,

"*La gloire des méchants en un moment s'éteint.*"

"Citizen Breſſon conſtituted mayor of Bienne by the French government, has acquired by his mildneſs and civiſm the general confidence and love of the inhabitants. He has ſeveral times appeared in the council, decorated with the national ſcarf. To him we owe the happy diſpoſition of the people. To-morrow we ſhall ſolemly plant the tree of liberty. Long live the Republic!"

The account of this ceremony is thus detailed in another letter:

"Announce to the French republic the ſolemn ceremony of planting the tree of liberty, which took place at eleven in the morning.

"The republican phalanxes, led by General Nouvion, aſſembled in the ſquare before the town houſe, and were met by the French mayor and the magiſtracy. Inſtantly the tri-colour flag waved on the town-houſe, and warlike muſic ſtruck up. Several energetic harangues, by the general, the mayor, and many citizens both of Bienne and France, made the deepeſt impreſſion. Every ſentence breathed the pureſt civiſm and the mildeſt philanthropy. Patriotic ſongs were then ſung, a grand dinner was given by the general, and toaſts drank to the immortality of the great nation, and to the wiſhed-for union of the republic of Bienne to the firſt republic of the world. The feſtival was terminated by a ball, which continued the whole night, and every thing was conducted with the greateſt decorum, and the moſt pleaſing fraternity prevailed. The general was preſent for a ſhort time, and his heart was penetrated with the view of this delightful picture; all feeling ſouls experienced the moſt exquiſite ſenſations. The joy of the people was announced by a brilliant illumination, allegorical devices and patriotic ſongs. Beautiful young women appeared at the ball decorated with tri-colour ribbands and ſaſhes. What a noble triumph for the French republic is that made by friendſhip and ſweet fraternity!" *Moniteur, 13th Ventioſe (8th March).*

Soleure is pleaſantly ſituated upon the Aar, which here expands its banks and opens into a fine and broad river. I will not exert the privilege of a traveller, and tell you, what ſome extravagant antiquaries do not ſcruple to aſſert, that it was built by the patriarch Abraham; but you will have no difficulty, perhaps, in believing what others maintain, that it was one of the twelve towns which were deſtroyed upon the emigration of the original inhabitants into Gaul. It appears probable, from a great number of inſcriptions, medals, and other antiquities, which have been found in the neighbourhood, that it was re-peopled by a Roman colony; and it certainly was a Roman ſtation, as its antient appellation, *Caſtrum Salodurenſe*, implies. During that period of barbariſm which ſucceeded the downfal of the Roman Empire, it was ſacked and deſtroyed by thoſe northern nations who over-ran the greateſt part of Europe. From the time of its re-eſtabliſhment, until its admiſſion into the Helvetic Confederacy in 1481, its ſtate was ſimiliar to that of many other imperial towns, which acquired a gradual acceſſion of territory, and, after various ſtruggles, finally ſecured independence.

Soleure is a ſmall but extremely neat town, ſurrounded by regular ſtone fortifications, erected in the beginning of the preſent century; the walls encloſe ſcarcely more than fifty ſquare acres, and, including the ſuburbs, contain about four thouſand ſouls. Among the moſt remarkable objects of curioſity in the town is the new church, which was begun in 1762, and finiſhed in 1772; it is a noble edifice, of whitiſh-grey ſtone, drawn from the neighbouring quarries, which is a ſpecies of rude marble, and receives a good poliſh. The lower part of the building is of the Corinthian, the upper of the Compoſite order: the façade, which conſiſts of a portico, ſurmounted by an elegant tower, preſents itſelf finely at the extremity of the principal ſtreet. Pizoni was the architect, and the expence amounted to at leaſt £80,000; a conſiderable ſum for ſo ſmall a republic, whoſe revenues ſcarcely ſurpaſs £12,000 *per annum*. The interior is ſimple yet elegant, and decorated with a few modern paintings of inconſiderable merit, of which the moſt eſteemed is the Laſt Supper, by Corvi, a Roman artiſt. A picture by Rubens and his ſcholars, in the church of the Cordeliers, and one by La-Sueur, in that of the Capuchins, deſerve perhaps to be noticed by the traveller who is fond of the fine arts. The town-houſe is not in itſelf worthy of obſervation, but is mentioned only as being the place of meeting for the Great Council and Senate.

The public priſon newly conſtructed, is a ſolid edifice of ſtone, and well adapted to the purpoſe of the building; the priſoners being confined in ſeparate cells. Although the penal laws are ſevere in theory, yet the judicial ſentences in criminal affairs are ſo remarkably mild, that a priſoner, on his acquital, wrote the following inſcription on the wall of his cell: "He who is inclined to rob, and eſcape hanging, let him rob in the canton of Soleure."

The public library deſerves to be mentioned, not for the number or rarity of the volumes, but for the literary zeal of the Abbé Herman, canon of the cathedral, to whom it owes its origin. On my firſt viſit to this town, in 1776, there was no public collection of books; but a few years ago, that ingenious eccleſiaſtic amaſſed about four hundred volumes, obtained from government an apartment in the town-houſe, where he depoſited them, and requeſted to be appointed librarian without a ſalary. His petition being granted, he continued to augment his little collection; and from this ſmall beginning has increaſed it already to eleven thouſand books, among which are above a hundred-and-fifty printed in the fifteenth century. At the two extremities of the room are inſcribed the names of the benefactors to this library; but there is no fund yet eſtabliſhed for its ſupport or augmentation.

The Abbé has alſo begun to form a cabinet of medals; which, though at preſent extremely ſmall, will increaſe like the library. He pointed out to me a very rare medal,

diſcovered

diſcovered in digging the foundation for the new cathedral; it is in bronze, of the middle ſize; on one ſide is the head of Septimius Severus, with the inſcription, *L. Septimius Severus Pius Aug. P. M. Tr. P. xviii. Coſ. iii. P. P.* On the reverſe, a figure ſitting, before it a prow of a ſhip, and a genius or little boy. Great merit is due to the Abbé for laying the foundation of this library, in a town where literature is not much encouraged; and his diſintereſtedneſs is worthy of notice, as his income does not exceed £160 *per annum.* This learned eccleſiaſtic is now employed in writing an account of Soleure at the period of the Reformation, and is collecting ample materials for a complete hiſtory of the canton.

With reſpect to natural hiſtory, the only cabinet in the town is that formed by Senator Wallier: it is a ſmall collection, but well choſen, and particularly intereſting to the naturaliſt who travels into theſe parts, becauſe the ingenious collector has chiefly confined himſelf to the minerals and petrifactions of the canton.

The circumjacent country is exceedingly pleaſing and diverſified, and exhibits ſeveral points of view which are as agreable as wild, and as beautiful as romantic. Among theſe we were particularly ſtruck with the ſituation of the hermitage called des Croix, about half a mile from the town, near the ſtone quarry: it ſtands in a receſs between two ridges of perpendicular rocks, watered by a lively ſtream; one extremity is cloſed by a ſmall wood, and the other opens into fertile grounds backed by the dark Jura. Among the villas, in the environs, remarkable for their poſition, may be mentioned Ricaberg, built by M. de Vigur; it ſtands at the bottom of a gentle hill, declining towards the winding Aar, and commands a view of Soleure, half hid by the intervening trees, and Bleikenberg, belonging to Major de Roll, ſituated amid waving grounds divided into encloſures, ſimilar to the fertile counties of England, the Jura riſing like the highlands of Scotland, and at a diſtance the ſublime Alps, which characteriſe this romantic country.

The canton of Soleure, which holds the eleventh rank in the Helvetic Confederacy, ſtretches partly through the plain, and partly along the chains of the Jura, and contains about fifty thouſand ſouls, including the inhabitants of the capital. The ſoil for the moſt part, is fertile in corn, and thoſe diſtricts which lie within the Jura, abound in excellent paſtures. The trade both of the town and canton, is of little value, although the ſituation is commodious for an extenſive commerce. It is divided into eleven diſtricts or bailliages, called Interior and Exterior; the former are governed by bailifs, who are ſenators, and remain in the towns; the latter, by bailifs, drawn from the members of the Great Council, who reſide in their bailliages.

The following is a liſt of the bailliages, with their average annual value; the four firſt are interior, the remainder exterior.

Buckegberg	£166	Beckburgh	£750
Kriegſtetten	146	Goeſgen	500
Laeberen, or Grenche	83	Olten	333
Flamenthal	62	Dorneck	834
Falkenſtein	546	Tierſtein	417
		Gilgenberg	375

The inhabitants of the canton are Catholics, excepting thoſe in the bailliage of Buckegberg, who profeſs the reformed religion. In ſpiritual affairs the Catholics depend on three biſhops: the greater part of the capital, the bailliages of Laeberen and Flamenthal, are in the dioceſe of the Biſhop of Lauſanne, reſident at Friburgh; the remainder of the capital, the bailliage of Kriegſtetten, and the villages in the bailliage of

Olten, in that of the Biſhop of Conſtance; while the other bailliages, and the town of Olten, depend on the Biſhop of Baſle. But neither of theſe biſhops can iſſue any ordinance, or even viſit their dioceſes, without the approbation of the Senate. There are two chapters in this canton; one at Soleure, founded in 930 by Queen Bertha, widow of Rhodolph II. King of Burgundy, compoſed of a provoſt, whoſe ſalary amounts to 360*l. per annum*, and of eleven canons, each of whom enjoys a revenue of 160*l.* The provoſt is choſen by the Senate, and the canons are appointed alternately by the Pope and Senate. The other chapter, of Schœnenwerth, founded by the antient counts of Falkenſtein, conſiſts of a provoſt and five canons, nominated by the Senate; the annual ſalary of the provoſt is 125*l.*, and of each canon 100*l.* There are alſo an abbey of Benedictines, four convents, and three nunneries; the revenues of which amount to 2,250*l.*

The principal charitable inſtitutions are, an hoſpital at Soleure, and another at Olten, for the reception of burghers, ſubjects, and foreigners; the foundation of Thurigan, for old perſons of both ſexes, belonging to the burgherſhip; a foundling hoſpital for orphans, and for children of poor burghers; and the hoſpital of St. Catharine, for the inſane and incurables.

The only perſons in the canton of Soleure, who profeſs the reformed religion, are thoſe who inhabit the bailliage of Buckegberg. In eccleſiaſtical affairs, the inhabitants though ſubject to Soleure, are under the protection of Bern. Formerly this complication of political and religious intereſts created frequent miſunderſtandings between the two cantons, but matters were amicably and finally adjuſted, on the 18th of November 1681, at the treaty of Winingen. The inhabitants take the oath of fidelity, every third year, to the government of Soleure; but if aggrieved in their religious eſtabliſhment, can have recourſe to Bern. The Senate of Bern nominates to the vacant benefices, but the prieſts are under the neceſſity of obtaining the confirmation of the chapter of Soleure. A deputy from Bern preſents the new miniſter to his pariſhioners; but the bailif is obliged to be preſent at this ceremony, as deputy from the republic of Soleure. Bern enjoys alſo ſupreme juriſdiction in criminal affairs. If a criminal is arreſted for any capital offence, he is tried by the bailif of Buckegberg, and the jury of the bailliage; and if condemned to death, he is delivered for execution to Bern, provided that republic defrays the expence of the trial. Soleure enjoys all the other rights of ſovereignty; ſuch as the power of levying taxes, appeals in the laſt reſort; and even decides all matrimonial and eccleſiaſtical concerns, with this proviſo, that the deciſion ſhall be regulated according to the articles of the treaty of Winingen. Among the natives in the canton, ſeveral inhabiting the bailliages of Thierſtein and Gildenberg were ſerfs; but, in 1785, their ſervitude, ſo contrary to the principles of that equal liberty which pervades this country, was, to the honour of the preſent government, aboliſhed.

The canton furniſhes France with two companies for the Swiſs guards, and ſeveral companies in the different marching regiments, according to the capitulation concluded between the King of France and the Catholic cantons, in 1764, for the term of twenty-five years. It has alſo a regiment in the Spaniſh ſervice; of which the colonel and companies of fuſileers can only be taken from the *antient* burghers.

With reſpect to the militia, all the males from the age of fifteen to ſixty, are formed into ſix regiments, conſiſting of about 8000 men, excluſive of 240 dragoons, and the corps of artillery, amounting to 600. The colonel of each regiment is always a ſenator, and the major a member of the Great Council, who is uſually an officer retired from foreign ſervice; the captains are either members of the Great Council, or *antient*

burghers; the firſt lieutenants are generally *antient* burghers, while the rank of ſecond lieutenants and enſigns is uſually filled by the principal peaſants.

The militia are aſſembled and reviewed in May and September, and in the ſpring and autumn exerciſed in the reſpective villages by the under-lieutenants and enſigns. According to a plan of defence, regulated in 1668, between the members of the Helvetic Confederacy, the canton of Soleure is bound to furniſh 600 for its firſt contingent; for this ſupply, 100 men, together with officers, are annually ſelected from each of the ſix regiments, who are to hold themſelves in readineſs to march at a moment's warning. In caſe of neceſſity, this contingent may be doubled or tripled in the ſame manner. The burghers are incorporated in the company of fuſileers, and exerciſe themſelves on Sundays and ſaints' days, after divine ſervice, by ſhooting at marks: government furniſhes powder and ball, and diſtributes prizes to the beſt markſmen. The remaining inhabitants of the capital and environs, who are not burghers, form a ſeparate body, commanded by the captain of the town; they are alſo occaſionally exerciſed, and mount guard on the day of St. John the Baptiſt, when the *Roſengarten*, or the general meeting of the burghers, is aſſembled.

The ſovereign power reſides in the Great Council, which conſiſts of a hundred and two members, choſen by the Senate, in equal proportions, from the eleven tribes or companies, into which the *antient* burghers are diſtributed; and in all inſtances, the new member is taken from the company to which the laſt member belonged.

The prerogatives of the Great Council are, to enact and abrogate laws; to explain obſcure parts of the conſtitution, and make alterations in the form of government; to levy taxes, declare war, and conclude peace; to contract alliances, receive appeals in criminal cauſes from the burghers of the capital, and in civil proceſſes, above the ſum of 100 Swiſs livres, or 6l. 3s.; to confer the *new* burgherſhip; elect the treaſurer, or fourth chief of the republic, from the antient eleven ſenators; nominate to the ſeven exterior bailliages, and to the four Italian governments of Lugano, Locarno, Mendriſio, and Valmaggia, when the appointment belongs to Soleure; chuſe the deputies for the diet of Frauenfield, and thoſe for extraordinary meetings of the Helvetic Confederacy; though in both theſe caſes it is the cuſtom to appoint a ſenator, and uſually one of the four chiefs, the reigning avoyer excepted, who is not permitted to be abſent during the year of his adminiſtration.

There are generally a few ſupernumerary members in the Great Council, which circumſtance proceeds from the method of appointing the bailifs. On the nomination of a bailif, his ſeat in the Great Council being deemed vacant, is on the next day filled up by a member of the ſame company in which he is inſcribed. At the concluſion of his bailliage he again takes his ſeat, preſerving his antient rank, though conſidered as a ſupernumerary, until one of the ſix members of his tribe makes a vacancy. To be qualified for admiſſion into the Great Council, the candidate muſt be twenty years of age, an *antient* burgher, and a member of the ſame tribe in which the vacancy happens; but if inſcribed in a company different from that of his father, he muſt, according to a decree paſſed in 1764, have been a member of that company during a year.

The Great Council aſſembles ordinarily once every month; and extraordinarily, when convened by the Senate.

The Senate, or Little Council, a conſtituent part of the Great Council, is compoſed of the two avoyers or chiefs of the republic, who annually alternate; the chancellor or ſecretary of ſtate, who has no vote; and thirty-three ſenators drawn from the remaining ſixty-ſix members of the Great Council, divided into eleven ſeniors, and twenty-two juniors. From the ſeniors, the two avoyers, the banneret, and treaſurer, are always choſen. Upon a vacancy among the eleven, the right of election, though reſiding in the

juniors, is always exerciſed according to ſeniority: the moſt antient in rank among the three junior counſellors, of the ſame tribe to which the late member belonged, is immediately appointed, or rather confirmed, by the juniors. Upon the death or promotion of a junior, his place is immediately filled up by the two avoyers and eleven ſeniors.

The Senate examines and digeſts all affairs before they are ſubmitted to the Great Council; is entruſted with the executive power and care of the police; receives all appeals in the firſt inſtance from the inferior courts of juſtice; gives judgment in all civil proceſſes not exceeding the value of 100 Swiſs livres; and poſſeſſes ſupreme and final juriſdiction in criminal cauſes, except thoſe in which a burgher of the capital is concerned, who may appeal to the Great Council.

The Senate alſo nominates, either directly or indirectly, to moſt of the important charges of the republic, and confers the principal eccleſiaſtical benefices; it aſſembles regularly three times a week, and is convoked on extraordinary occaſions by the reigning avoyer. A ſenator muſt be twenty-four years of age, member of the Great Council, and drawn from the ſame company to which the laſt ſenator belonged.

The ſalaries of the principal magiſtrates are:

	£.	s.
The reigning avoyer, about	363	
The avoyer out of office	137	10
The ſeniors, each	46	
Chancellor	208	
Attorney-general, including his ſalary of ſenator	100	
The juniors, each	37	10

Government draws its principal revenues, which do not exceed 12,500l. *per ann.* from the following ſources. 1. A tax, called the tax for fortifications, laid on the funds of the tribes and monaſteries in the town, and on thoſe of pariſhes in the bailliages. 2. Tythes, and *rentes foncieres* belonging to the ſtate. 3. Tolls. 4. Exciſe on wine. 5. Intereſt of money placed out in the canton and in foreign countries. 6. Monopoly of ſalt. 7. Revenues from the bailliages. 8. Subſidy from France; about 1108l. 9. Sundry ſmall ſources, ſuch as demeſnes, eſtates, ſalaries of vacant benefices, &c.

The principal departments of government are, 1. The tribunals; which compriſe the inferior courts of juſtice, and the Secret Council, conſiſting of ſeven members, namely, the two avoyers, the banneret, the treaſurer, the firſt ſenior ſenator, the chancellor, and the attorney-general; ſhould any of theſe perſons be abſent, their places are ſupplied by the antient ſenators, according to ſeniority. 2. The boards of war. 3. Of the rights, called *droits regaliens*. 4. Of finances, agriculture, and public buildings. 5. Of the police. 6. Of eccleſiaſtical affairs, charitable inſtitutions, and ſchools.

The burghers are divided into *antient* and *new*; the antient are alone capable of being members of the Great Council, or enjoying any ſhare in the adminiſtration of affairs. The origin of this diſtinction is dated from 1681. Several foreign families, which ſettled at Soleure and obtained the right of burgherſhip, being admitted into the Great Council, gave umbrage to thoſe illuſtrious families whoſe anceſtors had, by their valour and prudence, laid the foundation of the republic. To prevent the farther participation of honours and emoluments, to which they conceived themſelves ſolely entitled, the Great Council confined the offices of government excluſively to thoſe families, which at that epoch enjoyed the rights of burgherſhip, until they were reduced to the number of twenty-five. It was at the ſame time enacted, that theſe families and their deſcendants ſhould be diſtinguiſhed by the name of *antient* burghers; and that thoſe, who

afterwards received the burgherſhip, ſhould be called *new* burghers; and to enforce theſe regulations, that any burgher who made any propoſition contrary to this law, ſhould be baniſhed from the canton, and his goods confiſcated.

Beſides this excluſive privilege, the *antient* burghers enjoy the ſole right of being appointed canons in the chapters of Soleure and Schœnenwerth, and of holding any eccleſiaſtical benefice in the gift of the Senate. But as there is at preſent a great deficiency of clergymen among the *antient* burghers, it will probably ſoon be thought neceſſary to diſpenſe with this law, and permit the *new* burghers, and all ſubjects of the canton, to be candidates for vacant livings.

About eighty-five families poſſeſs the right of *antient* burgherſhip; and of theſe, about thirty-four of the moſt illuſtrious ſupply the members of the Great Council, and fill the various departments of government.

The rights of the *new* burghers conſiſt in nominating and annually confirming the avoyer, the banneret, and *grand ſautier*, or lieutenant of the police; but as they always chuſe thoſe perſons who are ſelected by the Senate, as they exerciſe this privilege in conjunction with the *antient* burghers, and as by the edict of 1681 they muſt retire from the aſſembly, ſhould there be any oppoſition, this right of election is little more than a mere formality. In all other inſtances, excepting in thoſe concerns which relate to government, the *new* burghers enjoy the ſame privilege as the *antient*, ſuch as freedom of trade and commerce, the property of houſes and land in the capital and its diſtrict, and are alſo entitled to hold eccleſiaſtical benefices in the gift of the chapters and individuals.

The burghers, both *antient* and *new*, are diſtributed into eleven tribes or companies, each whereof furniſhes three ſenators and ſix members of the Great Council. Every perſon may chuſe the company in which he inſcribes his name; but he cannot afterwards change it. For the purpoſe of obtaining a place in the government at an early period, a young noble ſelects that company in which there is a probability of a vacancy; but ſhould he fix upon one different from that in which his father is incorporated, he muſt have been received a member during a whole year, before he can be a candidate for admiſſion into the Great Council.

The general aſſembly of *antient* and *new* burghers, called *Roſengarten*, who meet on the day of St. John the Baptiſt, for the purpoſe of electing or confirming the charges of avoyer, banneret, and *grand ſautier*, deſerves to be deſcribed for its ſingularity, and will convey to you ſome idea of thoſe annual elections, or rather confirmations, of the principal officers, which take place in moſt of theſe ariſtocratical ſtates.

This aſſembly is held in the church of the Cordeliers, and denominated *Roſengarten*, or Garden of Roſes; either becauſe a noſegay, which every burgher carries in his hand, was formerly compoſed of roſes, or becauſe this meeting uſed to be convened in the garden of the Cordeliers, which is ſaid to have been called the Garden of Roſes.

About ſix in the morning the avoyer out of office, the ſenators, members of the Great Council, and the *antient* and *new* burghers, aſſemble in their reſpective companies. After the repetition of certain ſignals, the reigning avoyer, accompanied by the chancellor, the ſecretary of the finances, and ſeveral other officers of ſtate, repair, with drums beating and trumpets ſounding, from the town-houſe to the church of the Cordeliers, where, after preſenting his offering upon the altar of the Virgin, he ſeats himſelf on a throne near the altar. Soon afterwards the ſenators and remaining members of the Great Council appear at the head of their reſpective tribes; and having preſented their offerings, the avoyer out of office places himſelf near his colleague on the throne. At the concluſion of a maſs accompanied with muſic, all but the burghers retire, and

the doors of the church are closed. The reigning avoyer, with a sceptre in his hand, pronounces an harangue; then delivering up the sceptre and seals, resigns his dignity, and receives the thanks of the assembly, by the mouth of the attorney-general, for his zeal and attention during the year of his government. Next follow, in the same manner, the resignations of the banneret and of the attorney-general; the former of whom is thanked, in the name of the assembly, by the attorney-general, and the latter by the avoyer who has just resigned.

This ceremony being finished, the two avoyers, bannerets, attorney-general, and antient senators, retire from the choir to another part of the church; and the chancellor summoning the junior senators into the choir, pronounces the name of each antient senator, and of the attorney general, and demands whether the junior senators are pleased to confirm them in their charges for another year. This being obtained, the chancellor and junior senators repair to the assembly in the body of the church, where the chancellor recites the names of the senior senators and attorney-general confirmed by the juniors, and demands the approbation of the whole assembly of burghers. Upon this the avoyer, who has just resigned, and all the senators, except the avoyer out of office and the banneret, come into the church, and take the usual oaths. The chancellor then acquainting the assembly that they must elect the reigning avoyer; the avoyer who has just resigned proposes his colleague; the officer of state, called the *Grand Sautier*, cries out, "Let all those who chuse to elect the right noble A. B. reigning avoyer, hold up their hands under oath;" and immediately notifying his election, the avoyer enters the church, takes the oath from the chancellor, and administers it to the *grand sautier*. The election of the banneret is made in a similar manner: having resigned his office, he is proposed to the assembly by the reigning avoyer, and being accepted, gives his hand to the reigning avoyer, as he never takes the oath but in time of war. The *grand sautier* is likewise recommended by the reigning avoyer, and, re-entering the church, takes the oath to government.

At the end of these elections, several decrees of the Great Council are read, particularly that which relates to the right of *antient* burghership, and the election of the avoyer, banneret, and *grand sautier*; by which it is enacted, that should any opposition be made to the regular order of appointment, the *new* burghers shall retire from the assembly, and the election be vested solely in the *antient* burghers.

The same magistrates are always re-elected or confirmed in their several places: the avoyer out of office is nominated reigning avoyer; on the death of either of the avoyers, the banneret is of course appointed to the vacant office, and succeeded by the treasurer, after the formality of a nomination. When the ceremony is concluded, the reigning avoyer, at the head of the Senate, passes through a double line of troops under arms to the town-house, where the first magistrate and the antient senators confirm the junior senators; he then returns to his own house, accompanied by the Senate and members of the Great Council, and is complimented first by the banneret, and afterwards by the chancellor.

From this detail we may conclude, that those authors have erred who call the government of Soleure aristo-democratical, for it is certainly a most complete aristocracy; inasmuch as the supreme government resides in the Great Council, of which the members are exclusively taken from the *antient* burghers; as there are only eighty-one families which enjoy that right, and no more can be added until they are reduced to twenty-five; as of these scarcely more than thirty enjoy any share in the government; and lastly, as the election and annual confirmation of the principal magistrates is confined to the *antient* burghers, should there be any opposition in the general assembly called Rosengarten.

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The government, however, under whatſoever title it may be claſſed, is mild and equitable, and the people are tranquil and contented *.

LETTER XXI.—*Treaties with France.—Reflections on Foreign Service.*

THE French ambaſſador to the Helvetic body reſides in Soleure, and diſtributes thoſe annual penſions which the King pays to the Catholic cantons. Louis the Eleventh was the firſt French monarch who employed Swiſs troops, and granted ſubſidies to the ſtates, ſince conſiderably augmented by his ſucceſſors. The perpetual alliance which Francis the Firſt concluded with the Swiſs cantons, ſoon after the battle of Marignano, is conſidered as the baſis of every ſubſequent treaty, and greatly contributed to increaſe the power of France; the Swiſs infantry aided Henry the Fourth in eſtabliſhing himſelf on the throne of his anceſtors, repreſſed the contending factions during the turbulent

* The truth of this remark was fully proved by the conduct of the people during the effervescence of the Swiſs revolution. Although the offices of government were excluſively confined to a ſmall number of perſons, and notwithſtanding the vicinity to the canton of Baſle, where diſaffection had made a rapid progreſs; yet, a few ſeditious perſons excepted, the inhabitants of the whole canton, both in the town and country, rallied round the whole conſtitution. Even after the French troops were ready to enter the canton, and after the government of Bern had tamely conſented to reform their conſtitution, the people of Soleure manifeſted an extraordinary dread of innovation.

A printed paper from the agents of France, under the title of the patriots of Soleure, was diſperſed, in which, after declaring their reſolution to maintain the religion of their fathers, and to preſerve their independence and connection with the Helvetic body, they required the union of the citizens of the town and canton, and the convocation of a national aſſembly.

Theſe inſidious propoſitions excited general indignation; and on the 6th of February the militia of the canton marched to the town, the artillery was planted on the ramparts, many ſuſpected perſons were arreſted, and all the inhabitants prepared to defend their liberties to the laſt extremity.

But the magiſtrates, intimidated by the fluctuating counſels of Bern, and threatened with the inſtant approach of the French, declared their reſolution to adopt the new principles, and ſummoned repreſentatives of the people to arrange a new conſtitution. Yet theſe very repreſentatives, thus convened to alter the conſtitution, *were poſitively inſtructed by their conſtituents to inſiſt that the antient form of government ſhould be maintained in all its parts*. With a view, however, to conciliate the French, and yet to prevent haſty innovations, a decree was iſſued on the 11th of February, in the name of the avoyer, great and little councils, and deputies of the towns and country, "for effecting ſuch alterations in the form of government as ſhould introduce an equality of rights between the inhabitants of the towns and thoſe of the communes."

This decree was preceded by a ſolemn oath, taken by all the members of the government and the deputies, "to maintain inviolate their holy religion, as tranſmitted by their forefathers; to defend to the laſt man, againſt all enemies, that precious jewel of liberty and independence, purchaſed with the blood of their anceſtors; and acting in the character of free Swiſs, never to ſeparate themſelves from the Helvetic confederacy; but, on the contrary, to fulfil all the duties contracted in virtue of exiſting alliances."

It then aboliſhes all diſtinctions between the inhabitants of the towns and country with reſpect to repreſentation and eligibility to the offices of government, and eſtabliſhes a committee to arrange with the repreſentatives the new conſtitution.

It ordains that, in the mean time, the eſtabliſhed government ſhould continue to exiſt proviſionally; that it ſhould be reſpected, and remain in force until the formal eſtabliſhment of the new conſtitution.

But the people were ſo little inclined to exerciſe their new rights, that no ſteps were taken to carry the decree into execution, and the diſſolution of the ancient government was only effected by the capture of Soleure. The body of the people manifeſted the greateſt ardour. Seven thouſand troops co-operated with the army of Bern, and all the forces of the canton would have come forward in defence of their country, had not the poſt of Lengnau been ſurpriſed, the advanced guard at Grange defeated, and Soleure captured.

The extraordinary circumſtances which led to theſe events are related in the Introductory Chapter.

Shawembourg, in accepting the capitulation, promiſed ſecurity to perſons and property; but in defiance of this promiſe, four-and-twenty villages in the vicinity were given up to plunder, the inhabitants were diſarmed, the arſenals ſeized, and ſome of the magiſtrates, after being paraded round the town in barbarous triumph, were inhumanly put to death.

minorities

minorities of Louis the Thirteenth and Fourteenth, and diſtinguiſhed themſelves during the continental wars in which France was engaged, by fidelity, valour, and diſcipline.

The general alliance between France and the whole Helvetic union, ratified by Louis the Fourteenth in 1663, was to remain in force during the joint lives of that monarch and his ſon the dauphin, and for eight years after the death of either. Towards the end of his reign, Louis, on his ſon's death, propoſed to renew the treaty in his own and his ſucceſſor's name; but the Proteſtant cantons refuſing their conſent, it was concluded only with the Catholic cantons and the republic of the Vallais.

This alliance differed from the former treaties in three eſſential articles: 1. If France was invaded, the contracting republics permitted an additional levy to be raiſed at the King's expence, not exceeding ſixteen thouſand men; 2. If the Helvetic body, or any particular canton, ſhould be attacked by a foreign power, the King engaged to aſſiſt them with as many forces as were judged neceſſary; and 3. Should diſſentions ariſe between the contracting cantons, the King was, at the requeſt of the aggrieved party, to employ his mediation, and that failing, he bound both himſelf and his ſucceſſor to compel the agreſſor to abide by the treaties concluded between the cantons and their allies. This laſt article, as it authorized the interference of the King of France with the politics of Switzerland, appeared dangerous to many of the Swiſs, and inconſiſtent with that abſolute independence which they had hitherto prized above all other advantages.

France having long in vain attempted to perſuade the Proteſtant cantons to join the alliance, for the purpoſe of renewing a general treaty with the whole Helvetic body, at length ſucceeded, after much oppoſition. This important league was concluded at Soleure in May 1777, between the King of France on one ſide, and the thirteen cantons and their allies on the other, to continue in force during fifty years. By this treaty it is agreed, that on the invaſion of France the cantons and their allies ſhall furniſh an additional levy of ſix thouſand men; and if the cantons or any of their allies are attacked, the King, if required, engages to furniſh them, at his own expence, with ſuch ſuccours as may be deemed neceſſary. That article of the treaty with the Catholic cantons in 1715, which related to the mediation of the King, in caſe of any diſputes between the thirteen cantons, is very wiſely omitted.

Before this alliance, none of the Proteſtant ſtates received penſions from France; but by the ſixteenth article, the Proteſtants of Glarus and Appenzel, and the town of Bienne, agreed to accept *les argents de paix et d' alliance*, as theſe ſubſidies are here called. The acceptance of penſions derogates greatly from that ſpirit of abſolute independence, which all the Proteſtant ſtates of Switzerland have hitherto affected to profeſs; and it would have reflected much greater honour on the Swiſs nation, had the whole body imitated Zuric, Bern, Baſle, and Shaffhauſen, in forming the league upon terms of perfect equality, and rejecting the proffered penſions, which give an air of venality to their treaties with France.

It has long been a controverted queſtion, whether Switzerland gains or loſes by furniſhing troops, according to the tenor of her alliance with France, Spain, Sardinia, Naples, and Holland. It has been urged, that without theſe ſupplies to foreign nations, Switzerland would be overſtocked with inhabitants, and the natives compelled, like the northern hordes of old, to emigrate for ſubſiſtence, as in many parts there is no commerce, and the mountain tracts cannot ſupply ſufficient proviſion for the inhabitants. In reply it may be alleged, that the Swiſs do not uſe all the reſources in their power: commerce might be more generally cultivated and encouraged; as there is no part of Switzerland far removed from the principal rivers and great lakes, moſt of which have a direct communication with the ſea.

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But, to be convinced that they have not exhauſted all the advantages to which they might reſort, let them look back on ancient Greece, and the immenſe populouſneſs of ſo confined a country; of, what is more open to their obſervation, let them conſider the preſent ſtate of the United Provinces, and the abundance which thoſe induſtrious people enjoy on a tract of land ſnatched from an element perpetually reclaiming its prior occupancy! But the Swiſs need not be reminded of antient or foreign examples: Geneva and St. Gallen are, for their extent, exceedingly populous; and yet the productions of their lands are by no means ſufficient to ſupport all the inhabitants. Appenzel and Vallengin are entirely mountainous; nevertheleſs both thoſe diſtricts are remarkably well peopled, and derive from commerce and induſtry all the neceſſaries of life in great abundance. Indeed Switzerland is ſo far from being overſtocked with inhabitants, that in moſt of the great towns there is a manifeſt deficiency; and in ſeveral parts of the country, hands are frequently wanting for the common purpoſes of agriculture.

Theſe reflections ſeem to prove the miſtaken policy of Switzerland, in letting out her troops to foreign ſtates. On the contrary, many circumſtances may be alleged in its favour. This practice has tended to keep up the military ſpirit of the Swiſs, even during a ſtate of profound peace, which has now continued, with few interruptions, for three hundred years. The ſtates not only have in conſtant reſerve, and without expence, a body of well-diſciplined forces, which they can recall at a moment's warning; but it becomes the intereſt, for that reaſon, of thoſe powers whom they furniſh with men, not to foment any diviſions, which might render the preſence of their troops neceſſary at home. Add to this, that the privileges which the Swiſs enjoy in France, and the advantageous articles relating to commerce ſecured to them in all their treaties, ſeem to ſtrengthen the argument for continuing their military connections with that kingdom.

This argument, however, would be more concluſive, if thoſe privileges were ſtill preſerved in the ſame latitude as was granted by the ninth article of the Perpetual Peace concluded with Francis I. in 1516, and confirmed by ſeveral ſucceſſive treaties. But the caſe is far otherwiſe. The immunities have been gradually and almoſt imperceptibly violated: the Swiſs merchants were ſubjected to the poll-tax, and freſh duties, contrary to the tenor of their rights, impoſed on their merchandize. During the adminiſtration of the Duke d'Aiguillon, the Swiſs complaining of theſe infractions, a negotiation was begun at Soleure with the French ambaſſador, which produced, however, no other effect than a ſhort letter from the miniſter, declining to redreſs the grievances.

On the late renovation of the Perpetual Peace in 1777, it was expected that this matter of diſpute would be amicably adjuſted; and the Count de Vergennes inſinuated that ſuch was the intention of the court of Verſailles. Many cantons, and particularly Zuric, were principally induced by theſe expectations to accede to the alliance; but not wholly truſting to the promiſes of the French cabinet, it was inſiſted that an article explaining and confirming the ſaid privileges ſhould be inſerted in the new treaty. The miniſter, with his uſual addreſs, eluded a direct mention of the demanded rights; but not to loſe the confidence of the nation, at a time when he moſt wiſhed to obtain it, the King engaged, by the 18th article, to *preſerve to the Swiſs thoſe privileges and advantages to which they had a legitimate right, and which they had hitherto enjoyed in France;* and the Swiſs agreed to poſtpone *the preciſe determination of the nature and extent of the ſaid privileges to future conferences, wherein thoſe matters ſhould be regulated with fidelity and equity.*

It is a matter of aſtoniſhment that the Swiſs were contented with ſo ambiguous a declaration, or were induced to believe that the French court would preſerve to them their legitimate immunities, in the moment when that legitimacy was a ſubject of contention.

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The Helvetic body had ſoon occaſion to repent of their credulity: for, in 1781, the King of France iſſued an edict, irrevocably ſubjecting the Swiſs who poſſeſs lands in France to the poll tax, and to all national impoſts, and laid the ſame duties on their merchandize imported into France, as are paid by the merchants of other countries, cheeſe and linens excepted, which were taxed at a reduced value.

But a ſtill ſeverer blow was levelled againſt the Swiſs in 1786; when, notwithſtanding the expreſs reſervation granted in the perpetual peace, the importation of their linens was prohibited in France. The prohibition of this branch of commerce, which furniſhed employment to ſo many hands in various parts of Switzerland, particularly in the cantons of Zuric, Glarus, and Appenzel, and was almoſt the ſole reſource of the natives, ſpread a ſenſible alarm, but was not productive of ſerious conſequences. After the firſt ſurpriſe and agitation, the induſtry of the Swiſs was not abated; and the linens found their way into France either by contraband trade, or by contract with the French Eaſt-India Company.

LETTER XXII.—*The Canton of Zug.*

Zug, Auguſt 5.

WE yeſterday quitted Zuric *, and walked to Albis, a ſmall village about three leagues diſtant, ſituated near the ſummit of a mountain, much viſited by travellers for the variety and extent of the proſpect.

We fortunately eſcaped a violent ſhower of rain, accompanied with a ſtorm of thunder and lightning, which had threatened for ſome time, and began immediately upon our arrival; but we were well houſed, and our hoſt gave us a good ſupper, and an excellent bottle of Muſcat wine. We were abroad this morning by five, and had a very agreeable walk to Zug; the weather, which had of late been very ſultry, being cooled by the lightning and rain. We paſſed over the field of battle at Cappel, where Zuingle was ſlain; regretting this inſtance of diſunion between the Swiſs republics, and lamenting the premature death of that great reformer. We purſued our journey through a pleaſant country, ſo thickly planted with fruit-trees, that I could hardly diſtinguiſh any other ſort. Indeed, we had before remarked the prodigious number of fruit-trees in ſeveral other parts of Switzerland, which is in many places almoſt a continued orchard.

Zug, the capital, ſtands delightfully upon the edge of a beautiful lake, in a fertile valley, abounding with corn, paſture, and wood. This canton formerly belonged to the Houſe of Auſtria, and continued faithful to that family when the neighbouring ſtates had formed themſelves into independent republics. As it lies between Zuric and Schweitz, the communication between thoſe two cantons was maintained with difficulty; and by this means frequent opportunities were afforded to the Houſe of Auſtria of invading and haraſſing the Swiſs. Under theſe circumſtances, the ſix allied cantons, in 1351, laid ſiege to Zug, which was reſolutely defended by the inhabitants; but as Albert Duke of Auſtria was unable to aſſiſt them, the town at length ſurrendered upon the moſt honourable conditions. The generoſity of the conquerors was equal to the

* I have, in this part, arranged the preceding letters differently from the former editions, and according to the journal of my tour in 1785; though I did not at that time proceed from Soleure to Zuric, yet I have thought proper to reſume the order of my firſt journey in 1776, and to bring the reader back to Zuric, from whence I take my departure, as before, to Zug. The traveller who enters Switzerland at Schaffhauſen, and quits it at Geneva or Neuchatel, will perhaps find this itinerary from Zuric to Baſle, Bienne, Soleure, and thence to Bern and Lucerne, more convenient than that from Zuric immediately to Zug and Lucerne; while thoſe who quit Switzerland at Baſle will prefer the latter.

courage of the vanquiſhed; for, in conſequence of this ſubmiſſion, the canton of Zug was delivered from the yoke of a foreign maſter; obtained liberty and independence; and was admitted into the Helvetic Confederacy upon equal terms.

The government of this little canton is exceedingly complicated; and the inhabitants of the town have ſomewhat more influence, and enjoy a greater ſhare in the adminiſtration of affairs, than thoſe of the capital burghs in the five other democratical cantons. The ſupreme power reſides in the inhabitants of Zug, Bar, Egeri, and Meutzingen, who aſſemble yearly to enact laws and chooſe their magiſtrates. The Landamman, reciprocally elected from each of the four diſtricts, continues three years in office when taken from Zug, and but for two years when choſen from each of the three other diſtricts. The general adminiſtration of affairs is entruſted to the council of regency, compoſed of forty members, of whom thirteen are ſupplied by the diſtrict of Zug, and twenty-ſeven ſelected equally from the three remaining communities. This council, as well as the Landamman, reſides always in the capital *.

Oſwald, one of our old Britiſh kings, is the tutelar ſaint of this place; and in the church is his ſtatue, with the following inſcription:

Sanctus Oſwaldus Rex Angliæ Patronus hujus Eccleſiæ.

Oſwald † was a king of Northumberland in the ſeventh century; and is much renowned among the monkiſh writers for his chaſtity, piety, and power of working miracles. I have endeavoured to diſcover the connection between a Britiſh king, under the heptarchy, and a ſmall canton of Switzerland; without reflecting how fruitleſs is the attempt to give any reaſon for long eſtabliſhed cuſtoms. In the church of Rome ſaints are eaſily tranſplanted into any ſoil; and caprice, as well as ſuperſtition, may have inclined the inhabitants of Zug to adore a ſaint whoſe name is barely known in his own country. I am, &c.

LETTER XXIII.—*The Town and Canton of Lucern.—General Pfiffer's Model.*

WE took boat at Zug, and being rowed acroſs the lake, which is about three leagues long and one broad, were landed at a village in the canton of Schweitz. From thence we walked to Kuſſnach; capital of a bailliage ſubject to Schweitz, and in our way paſſed by a ſmall chapel ſacred to William Tell, erected on the ſpot where, it is ſaid, he ſhot the Auſtrian governor. At Kuſſnach we embarked upon the lake of Lucern, and were much ſtruck upon our approach with the fine ſituation of that town, and the noble amphitheatre of mountains, which border the lake.

Lucern, originally ſubject to the Houſe of Auſtria, was expoſed to the inroads of Uri, Schweitz, and Underwalden, when thoſe cantons had ſecured their independence. Her commerce to Italy was interrupted, and her citizens compelled to be continually under arms, in order to protect their territory from inceſſant depredations. Under theſe circumſtances, the Houſe of Auſtria, imprudently loading the citizens with exorbitant taxes, Lucern made her peace with the confederate cantons; and, expelling the

* Zug was the only one of the ſmall cantons which did not ſend its contingent to the army, but made a ſhow of reſiſtance to the impoſition of the new conſtitution. On the 29th of April Zug was inveſted by French troops, ſurrendered on the 30th, and on the 1ſt of May accepted the new conſtitution.

† See an account of Oſwald, who was defeated and ſlain in 624, by Penda, King of the Mercians, in Pennant's Tour to Wales, vol. i. p. 258.

Auſtrian party, entered into a perpetual alliance with Uri, Schweitz, and Underwalden, and became a member of the Helvetic union.

The acceſſion of Lucern gave additional credit and power to the confederacy, and enabled it to reſiſt all the efforts of a great and implacable enemy. In 1386 Leopold Duke of Auſtria invaded the canton with a numerous army, when the combined troops gained a bloody victory at Sempach, in which Leopold loſt his life. In the accounts of this battle, an inſtance of private valour is recorded, which would have done honour even to a Grecian or a Roman name, and only requires the pen of a Thucydides, or a Livy, to equal in fame the exploits of the moſt admired heroes of antiquity. The Auſtrian army, far ſuperior in number, was drawn up in firm battalion, accoutred in heavy armour, and furniſhed with long pikes, which they preſented before them. The Swiſs troops were led to the attack in the form of a wedge, in order to open their way into the ranks of the enemy, and to break the ſolidity of the battalion. The Auſtrians nevertheleſs continued impenetrable, till Arnold de Winkelried ruſhed alone upon the enemy to certain death, and, ſeizing as many pikes as he could graſp, endeavoured to force through the ranks, but he was killed in the attempt. His patriotic valour, however, was not exerted in vain: it inflamed the Swiſs with new courage, and taught the only method of penetrating into the battalion, which they at length effected, after the moſt deſperate efforts.

Leopold himſelf might have eſcaped, when his troops firſt began to give way; but, with a magnanimity worthy of a better fate, he would not ſurvive ſo ignominious a day, and, ruſhing among the troops of the enemy, was ſlain. In the arſenal are ſtill preſerved his armour, together with a large quantity of cords, with which, according to tradition, he intended to bind the citizens of Lucern. The keeper of the arſenal diſplayed them to us with the ſame kind of triumph, as the man who ſhews the Tower of London points out the chains taken on board of the Spaniſh armada, which Philip II. is ſaid to have deſtined for the principal nobility of England.

The government of Lucern is entirely ariſtocratical, or rather oligarchical. The ſovereign power reſides in the Council of One Hundred, compriſing the Senate, or Little Council. The Great Council is the nominal ſovereign; but the whole power actually reſides in the Senate, conſiſting of thirty-ſix members, who are formed into two diviſions, exerciſing the office by rotation. The members of the Senate are neither confirmed by the Sovereign Council, nor by the citizens, but are only dependent upon themſelves; the diviſion which retires at the end of ſix months confirming that which comes into office. Beſides the vacant places in the Senate being filled by its own body, the power remains in the poſſeſſion of a few patrician families; and as the ſon generally ſucceeds his father, or the brother his brother, the ſenatorial dignity may be conſidered as hereditary.

The adminiſtration of the current affairs, the care of the police, the management of the finances, and the whole executive power, reſide in the Senate, which ſits conſtantly; whereas the Sovereign Council is aſſembled only upon important occaſions. The Senate has cognizance of criminal cauſes; but, in caſe of capital condemnation, the Sovereign Council is convoked, in order to pronounce the ſentence; a practice worthy of imitation! for the condemnation of a criminal cannot be too maturely weighed; and great ſolemnity uſed in pronouncing the ſentence, muſt make a deep impreſſion upon the minds of the people. In civil cauſes an appeal lies from the Senate to the Sovereign Council; but this muſt be a mere formality: as, in fact, it is an appeal from the ſenators in one court to the ſame ſenators in another. Indeed their influence over the Sovereign Council muſt neceſſarily be abſolute; for they themſelves conſtitute above a third of

that body, chooſe their own members, and confer the principal charges of government. They nominate alſo to the eccleſiaſtical benefices, which are very conſiderable; near two thirds of the revenues of the canton belonging to the clergy.

The chiefs of the republic are two Avoyers, choſen from the Senate by the Sovereign Council, and confirmed annually. In all elections, the relations of the candidates, to the third degree, are excluded from voting; and neither the father and the ſon, nor two brothers, can be members of the Senate at the ſame time. Excellent inſtitutions, one ſhould think, to prevent the too great influence of family connections! excellent indeed in theory, but uſeleſs in practice: this circumſtance proves, that when the ſpirit of the conſtitution is oligarchical, all laws enacted for the purpoſe of counteracting the power of the nobles, are mere cyphers. In ſome few inſtances, however, the authority of the nobles is controlled; for, in declaring war and peace, forming new alliances, or impoſing taxes, the citizens muſt be aſſembled, and give their conſent *.

Lucern being the firſt in rank and power among the Catholic cantons, is the reſidence of the Pope's nuncio, and all affairs relative to religion are treated in the annual diet which aſſembles in this town, compoſed of the deputies of thoſe cantons. The town contains ſcarcely three thouſand inhabitants, has no manufactures of any conſequence, and little commerce. Learning nowhere meets with leſs encouragement, and conſequently is nowhere leſs cultivated. What a contraſt to Zuric! Yet, under theſe diſadvantages, a few perſons have made no inconſiderable progreſs in literature. Among theſe the moſt conſpicuous is M. Balthaſar, member of the Senate, who poſſeſſes a library rich in books relative to the hiſtory of Switzerland, in which he is extremely converſant, and his publications already given to the world, and thoſe now preparing for the preſs, prove that he knows how to uſe them. His works are, for the moſt

* Lucern, like Soleure, affords a ſtriking example, that the ſubjects of an oligarchical ſtate may be not only ſatisfied with the government from which they are excluded, but even averſe to all innovation. Not all the cabals of the French agents, not all the clamours of the diſaffected, not all the exaggerations of the grievances under which they were ſuppoſed to labour, could induce the people to think themſelves oppreſſed. They rejected the proffered equality, and it was not without great oppoſition that the magiſtrates, rather than the people, on the 31ſt of January, declared themſelves a proviſional government, and announced their readineſs to accept a democratical conſtitution. Yet ſuch was the averſion of the people to the new order of things, that the ancient magiſtrates were inveſted with the proviſional government, and the national delegates did not aſſemble independently of the proviſional government till the 14th of March, when Bern had ſurrendered to the French arms.

During the progreſs of the French revolution, Lucern acted with great ſpirit, and was inclined to join in defence of her own independence, as well as in ſupport of the Helvetic union.

In anſwer to a ſummons from Bern, the magiſtrates, on the 2d of March, replied: "We obſerve that the demands of General Brune, if acceded to, would endanger not only the liberties of Bern, but the independence of the Helvetic confederacy. We have therefore determined, with the unanimous approbation of the repreſentatives of the people, that the regiment in the canton of Bern ſhall march wherever neceſſity requires, and that a ſecond regiment ſhall ſpeedily follow." On the 3d a declaration was ſent to Zuric: "We and the people are unanimouſly reſolved to ſacrifice our lives and property in defence of liberty againſt foreign invaſion. The alarm-bell will be inſtantly ſounded; and we exhort you to adopt the ſame reſolution: our religion, liberty, property, and every thing that is dear to us are in danger. We will ſhew ourſelves worthy of our forefathers; like free people, we will either conquer or die. Theſe are our reſolutions; theſe are the reſolutions of all our people." (Meiſter, p. ii. p. 8.) But it was now too late; Bern had already ſurrendered, and the troops of Lucern, diſguſted with the inſubordination of the Berneſe, retreated to the defence of their own territory.

Notwithſtanding the ſurrender of Bern and the deſertion of Zuric, a numerous body of peaſants demanded the re-eſtabliſhment of the ancient government, and joined the troops of the ſmall cantons, to reſiſt the entrance of the French; and the whole canton did not acquieſce without much oppoſition and bloodſhed. A corps of French, after a ſhort inveſtment, entered Lucern on the 30th of April, and reduced the people to unconditional ſubmiſſion.

Soon after this event, Lucern became the ſeat of the new Helvetic government.

part, in the German and Latin tongues; they contain biographical anecdotes of ſeveral illuſtrious Swiſs, elucidate various important parts in the general hiſtory of Switzerland, but more particularly relate to the canton of Lucern. His ſon, a member of the Great Council, deſerves to be mentioned for his collection of Engliſh books, and the zeal with which he endeavours to propagate a knowledge of our literature. I have alſo no leſs ſatisfaction in adding, that, ſince my firſt expedition into theſe parts, ſcience is more cultivated; that the principles of toleration are better underſtood and more widely diffuſed, and that a literary ſociety is eſtabliſhed for the promotion of polite learning.

The population of the canton has conſideraly increaſed within this century; a ſure proof of a mild and equitable government. The inhabitants are principally engaged in agriculture. The ſouthern parts of the canton are chiefly mountainous, and furniſh for exportation cattle, hides, cheeſe, and butter. The northern diſtrict is fruitful in corn, which being more than ſufficient for the conſumption of the canton, there is a conſtant exportation from the weekly market held in the town, to which the inhabitants of the ſmall cantons reſort, for the purchaſe of that and other neceſſaries. The overplus for the ſupply of this market is drawn from Suabia and Alſace. This commerce, which, together with the paſſage of the merchandize for Italy, is the chief ſupport of the town, might be exceedingly improved and augmented, conſidering its advantageous ſituation; for the Reuſs iſſues from the lake, paſſes through the town, and, having joined the Aar, falls into the Rhine.

The cathedral and the Jeſuits church are the only public buildings worthy of obſervation; but are overloaded with rich ornaments, and diſgraced by bad paintings. In the cathedral is an organ of a fine tone, and extraordinary ſize: the centre pipe, as the prieſt aſſured us, is forty feet in length, near three in diameter, and weighs eleven hundred pounds. The bridges which ſkirt the town round the edge of the lake are the faſhionable walks of the place, and remarkable for their length; being covered at top, and open at the ſides, they afford a conſtant view of this delightful and romantic country; they are decorated with coarſe paintings, repreſenting the hiſtories of the Old Teſtament, the battles of the Swiſs, and the dance of Death.

On our arrival at Lucern we ſent a letter of recommendation to General Pfiffer, a native of this town, and an officer in the French ſervice. He received us immediately, with his uſual civility, and ſhewed us his topographical repreſentation of the moſt mountainous part of Switzerland, which well deſerves the attention of the curious traveller. It is a model in relief, and what was finiſhed in 1776 compriſed about ſixty ſquare leagues, in the cantons of Lucern, Zug, Bern, Uri, Schweitz, and Underwalden. The model was twelve feet long, and nine and a half broad.

The compoſition is principally a maſtic of charcoal, lime, clay, a little pitch, with a thin coat of wax; and is ſo hard as to be trod upon without receiving the leaſt damage. The whole is painted with colours repreſenting the objects as they exiſt in nature. It is worthy of particular obſervation, that not only the woods of oak, beech, pine, and other trees, are diſtinguiſhed, but alſo the ſtrata of the rocks marked; each being ſhaped upon the ſpot, and formed with granite, gravel, calcareous ſtone, or ſuch other natural ſubſtances as compoſe the original mountains. The plan is indeed ſo minutely exact as to compriſe not only all the mountains, lakes, rivers, towns, villages, and foreſts; but every cottage, every torrent, every bridge, every road, and even every path is diſtinctly and accurately repreſented.

General Pfiffer has already been employed in this work about ten years, with aſtoniſhing patience and aſſiduity; he himſelf took the plans upon the ſpot, and laid down the elevations of the mountains in their reſpective proportions. In the proſecution

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of this laborious performance, he was twice arreſted for a ſpy, and in the popular cantons frequently worked by moonlight, in order to avoid the jealouſy of the peaſants, who think their liberty would be endangered ſhould an exact plan be taken of their country. Being obliged to remain ſome time upon the tops of the Alps, where no proviſion can be procured, he generally carries with him a few ſhe-goats, whoſe milk ſupplies him with nouriſhment. Indeed his perſeverance in ſurmounting the difficulties that have ariſen in the courſe of this undertaking, is almoſt inconceivable. When he has finiſhed any particular part, he ſends for the peaſants and *chaſſeurs* who reſide near the ſpot, and bids them examine accurately each mountain whether it correſponds, as far as the ſmallneſs of the ſcale will admit, with its natural appearance; then, by frequently retouching, he corrects the deficiencies. He takes his elevations from the level of the lake of Lucern, which, according to Sauſſure, is about fourteen hundred and eight feet above the Mediterranean.

This model, exhibiting the moſt mountainous parts of Switzerland, conveys a ſublime picture of immenſe Alps piled one upon another; as if the ſtory of the Titans were realized, and they had ſucceeded (at leaſt in one ſpot of the globe) in heaping Pelion upon Oſſa, and Oſſa upon Olympus. The General informed me, that the tops of the Alps which croſſed Switzerland in the ſame line are nearly of the ſame level; or, in other words, that there are continued chains of mountains of the ſame elevation, riſing in progreſſion to the higheſt range, and from thence gradually deſcending towards Italy. He is exceedingly polite and affable to ſtrangers, and ever ready to be of any ſervice to travellers, in pointing out the beſt roads, and in acquainting them with the places moſt worthy of obſervation.

Near Lucern is Mount Pilate, formerly called Mons *Pileatus*, from the Latin word *pilea*, becauſe its top is generally covered with a cloud or cap. This word has been corrupted into *Pilatus*, from which alteration a thouſand ridiculous ſtories have been invented; among others, that Pontius Pilate, after having condemned our Saviour to death, was ſeized with remorſe, made an excurſion into Switzerland, and drowned himſelf in a lake at the top of the mountain. This corruption of a word, and the abſurd legend fabricated from its alteration, will naturally remind you of ſeveral fables of ſimilar abſurdity, ſeriouſly related by the Greek writers; a circumſtance which my very worthy and learned friend Mr. Bryant has ſo amply and ably diſcuſſed in his *Analyſis of ancient Mythology*. I am, &c.

Having, in three ſucceſſive viſits to Lucern, obſerved the gradual progreſs of General Pfiffer's model, and in Auguſt 1786 ſeen it completed, I am enabled to add ſome particulars, partly from my own obſervation, and partly communicated by the ingenious artiſt himſelf.

This model is compoſed of a hundred and forty two compartments of different ſizes and forms; they are reſpectively numbered, and the whole can be taken to pieces and united with almoſt as much eaſe (if we may compare great things with ſmall) as the diſſected maps, by which children are inſtructed in geography.

The lake of Lucern, nearly the centre of Switzerland, forms alſo the centre of the plan, which comprehends part of the circumjacent cantons of Zuric, Zug, Schweitz, Underwalden, Lucern, and Bern, and a ſmall portion of the mountains of Glarus. It comprehends a ſpace of 18½ leagues * in length, and 11 in breadth; and the dimenſions of the model being 20 feet † and a half in length, and 12 in breadth, 203½ ſquare

* A league is equal to 2288 toiſes, or 13,728 French feet, or 14,643 Engliſh feet.

† French feet.

leagues

leagues are repreſented on a parallelogram of 246 feet, or about two Engliſh miles and ¼ by a ſquare Engliſh foot. The higheſt point of the model from the level of the centre is about ten inches; and as the moſt elevated mountain repreſented therin riſes 1475 toiſes, or 9440 feet, above the lake of Lucern, at a groſs calculation, the height of an inch in the model is equivalent to about 900 feet. And it is a matter of aſtoniſhment to obſerve the ſtupendous works of nature delineated with ſuch perfect reſemblance in ſo ſmall a compaſs.

Though I received conſiderable ſatisfaction from the firſt view of this extraordinary performance; yet I again contemplated it with much more pleaſure, and ſtill greater aſtoniſhment, when I was able to trace many of my various expeditions, and to recogniſe its ſurpriſing accuracy.

The general began this elaborate work at the age of fifty, and though now in his ſeventieth year, contines his annual expeditions into the alps, with a ſpirit and ardour that would fatigue a much younger perſon. It is likewiſe no leſs entertaining than inſtructive, to hear him expatiate, with an agreeable vivacity, on the moſt intereſting objects, which are obſerved on the model. He kindly ſupplied me with the following remarks, which I trancribe from my journal. According to a rough calculation, the height on which ſnow uſually remains during ſummer, may be eſtimated at 1360 toiſes, or 8704 Engliſh feet, above the level of the ſea; and on which it never melts, at 1448, or 9264 feet.

Among the phænomena of nature he mentioned the Rigi, an inſulated mountain near the lake of Lucern, twenty-five miles in circumference, and riſing to a perpendicular height of more than four thouſand feet above the ſurface of the lake: it is entirely compoſed of gravel and pudding-ſtone, and muſt have been formed by the waters. The Rigi joins to a ſmall ridge of ſand-ſtone running towards Schweitz.

Mount Pilate offers a moſt ſingular curioſity. At the elevation of five thouſand feet, and in the moſt perpendicular part, near the paſture of Brunlen, is obſerved, in the middle of a cavern hollowed in a black rock, a coloſſal ſtatue, which appears to be of white ſtone. It is the figure of a man in drapery, leaning one elbow on a pedeſtal, with one leg croſſed over the other, and ſo regularly formed, that it can ſcarcely be a *luſus naturæ*. This ſtatue is called Dominic by the peaſants, who frequently accoſt it from the only place in which it can be ſeen, and when their voices are re-echoed from the cavern, they ſay, in the ſimplicity of their hearts, "Dominic has anſwered us."

It is difficult to imagine by whom, or in what manner this ſtatue could be placed in a ſituation, which has hitherto proved inacceſſible to all who have endeavoured to approach it. About the beginning of the preſent century, one Huber, a native of Krientz, a neighbouring village, attempted to deſcend into the cavern by means of ropes let down from the ſummit of the rock; he ſucceeded ſo far as to gain a near view of this ſingular phænomenon, and was again drawn up in ſafety. On a ſecond trial, as he was ſuſpended in the air, and endeavoured to draw himſelf into the cavern by fixing a grapple to the ſtatue, the cord broke, and he was daſhed to pieces. Since that dreadful accident, no one has ventured to repeat the experiment from the ſame quarter. Another trial to penetrate to the ſtatue was made in 1756, by General Pfiffer and eight perſons, from a ſmall opening on the oppoſite ſide of the mountain, in which the natives collect a white ſubſtance called *mondloch*, or cream of the moon. As this opening is ſuppoſed to communicate with the cavern, the general and his companions crept on their hands and knees, one behind the other, and winding in the bed of a ſmall torrent, through ſeveral narrow paſſages, at length diſcovered the light of the ſun through a remote chaſm; but as the diſtance ſeemed very conſiderable, and as the fall

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of a ſingle ſtone might have obſtructed their return, they thought it imprudent to venture any further, and retreated without effecting their purpoſe.

LETTER XXIV.—*Valley of Entlibuch.—Zoffingen.—Lake of Sempach.—Anniverſary of the Battle.*

IN my firſt expedition to this country, I had no opportunity of viſiting the interior parts of the canton of Lucern, which I afterwards traverſed in 1785 and 1786.

On both theſe occaſions I paſſed from Bern to Lucern, one time along the high road leading through Zoffingen, Surſee, and by the lake of Sempach; at the other through Langenau, the Emme-thal, and the valley of Entlibuch, a diſtrict which though not uſually frequented by travellers, yet highly deſerves their attention.

In the 13th century, Entlibuch was ſubject to the counts of Wolhauſen, and came by purchaſe, in 1299, to the Emperor Albert. In the following century it was held as a fief from the Houſe of Auſtria by ſeveral ſucceſſive counts; till the natives grievouſly oppreſſed by Peter of Torrenberg, in 1386, threw themſelves under the protection of Lucern. That republic continued to poſſeſs Entlibuch, as a feudal tenure under the Houſe of Auſtria, until 1405; when the Archduke Frederic renounced all the rights of ſovereignty.

For above a century and a half, the inhabitants, inflamed with a deſire of independence, and excited by the example of popular cantons, frequently roſe in arms, and attempted to eſtabliſh a democracy; but without ſucceſs. Their laſt inſurrection broke out in 1653; ſince which time they have continued in a ſtate of perfect tranquility, under the wiſe adminiſtration of Lucern; and have enjoyed, with contentment, the conſiderable privileges with which they are endowed *.

The bailliage of Entlibuch extends from the Emme-thal in the canton of Bern, to the bridge near Wertenſtein, about fifteen miles in length, and nine in its greateſt breadth; and contains 11,000 ſouls. It is governed by a bailif, who is always a ſenator of Lucern; he continues in office two years, and generally reſides in that capital. The bailliage is generally divided into three diſtricts; the Upper, or Eſchliſmat; the Middle, or Shuepfen; the Lower, or Entlibuch: each of theſe has its ſeparate courts of juſtice, from which an appeal lies to Lucern.

That part of the bailliage which I traverſed, is a valley watered by ſeveral lively rivulets, winding for ſome way between two ridges of well-wooded hills, and abounding in pictureſque ſcenery. Afterwards the country was undulating, and the road, which was narrow and rugged, continually aſcended and deſcended through well-cultivated fields of paſture. I paſſed through ſeveral villages, of which the principal were Eſchliſmat, Shuepfen, and Entlibuch, which takes its name from the rivulet Entle, and gives it to the whole diſtrict. Theſe places are ſmall; but the whole country is ſtrewed with cottages, and ſeems a continued village. The inhabitants chiefly follow agriculture; they rear large quantities of horned cattle, ſheep, goats, and ſwine; make and export cheeſe in great abundance. Though uſually richer than the inhabitants in the other parts of the canton; yet they did not appear ſo well clothed, or to poſſeſs ſuch neat cottages, as their neighbours in the Emme-thal.

The peaſants of Entlibuch are much eſteemed for their independent ſpirit, vigour, and ſtrength; remarkable for keenneſs and vivacity, for great quickneſs in repartee,

* The peaſants of Entlibuch were remarkable for their attachment to the government, and for their decided oppoſition to French principles, during the late revolution.

for

for a peculiarity of garb, and for many ſtriking cuſtoms which diſtinguiſh them from the natives of the circumjacent diſtricts. Of various uſages, which eſcaped my notice during my ſhort ſtay among them, I chanced to gain information of one cuſtom, which reminds me of the *Feſcennina licentia* mentioned by Horace, that prevailed among the Roman peaſants. Two neighbouring pariſhes ſend a challenge to each other, and, at the concluſion of the carnival each diſpatches a man, *bedizened* with flowers and ſhells, called *ſhrove-monday ambaſſador:* he rides to the neighbouring village, and reads or rather ſings, two ſatirical compoſitions in verſe. The one, a general ſatire againſt the pariſh, uſually begins by celebrating a period of Swiſs hiſtory accommodated to the circumſtances of time and place, then draws a compariſon between the two pariſhes, giving the preference to his own, either for the ſuperior learning and piety of the prieſt, the wiſdom and impartiality of the preſident, the induſtry and ſpirit of the men, the beauty and chaſtity of the women, or the education of the children. The ſecond compoſition conſiſts of a ſtring of epigrams in ridicule of particular perſons; recording any ſcandalous adventures, or ludicrous circumſtances, which have happened ſince the laſt year. The poet finiſhes his harangue with expreſſing a wiſh, that on the next ſhrove-monday the inhabitants may improve, and not deſerve ſuch a ſevere reprimand.

At the concluſion of this lecture, which creates much laughter, the *mock ambaſſador* returns; and the men of the two pariſhes repair, with drums beating and colours flying, to an open place, called the *Field of Battle*, followed and encouraged by the inhabitants of their reſpective pariſhes. The two *armies* being drawn up in order of battle, the *combatants*, in imitation of the old Swiſs cuſtom, kneel, offer up a ſhort prayer, and ſtart up at the ſound of the trumpet.

Having formed themſelves into two columns of ſeveral ranks, they march arm in arm, with uniform ſtep and military attitude; both the foremoſt lines meet in front, and joſtle againſt each other, being ſupported and puſhed forwards by the hinder files, frequently aſſiſted by the women, until one *phalanx* is broken. The victorious party is dignified with the name of the *Swiſs*, and thoſe who gave way are called *Auſtrians*, in alluſion to the ancient animoſity between thoſe two powers. The jurymen of the diſtrict are preſent as umpires, and to prevent any violent diſputes and quarrels. After the rencounter both parties ſit down to table, and the day is concluded with feaſting. As theſe ſatirical compoſitions occaſionally created much ill will between the neighbouring pariſhes, and the rencounters were attended with various accidents, the government of Lucern aboliſhed the cuſtom; but has lately permitted it to be revived, with certain reſtrictions calculated to prevent future miſchief.

The valley of Entlibuch may be conſidered as one of thoſe parts which unite the mild and cultivated with the wild and rugged ſcenery of Switzerland; its acclivities gradually aſcend and terminate in Mount Pilate, whoſe barren top is ſeen towering above the fertile and well-wooded hills.

Quitting this valley, we croſſed the Emme over a covered bridge, admired the romantic poſition of Wertenſtein, a convent of Cordeliers, overhanging the perpendicular banks of the torrent, and paſſed through a very ſteep and rocky country to Malters, a ſmall village within a league of the capital. Here being a conſiderable fair, I ſtopped and dined at the *table d'hote*, in company with ſome gentlemen from Lucern. In walking through the fair, I obſerved ſeveral booths for the ſale of artificial flowers, which were purchaſed by the country girls. With theſe flowers, and with four bows of ribbands, they ornament their hats, which they adjuſt obliquely, with a degree of ruſtic coquetry not unbecoming.

Another diſtrict of this canton is that part which I viſited in 1786, along the high road leading from Bern to Lucern. I paſſed the night at Zoffingen, a ſmall town in the canton of Bern. The inhabitants enjoy greater immunities than any other place in that canton; they have their own magiſtrates, and, what is peculiar, their own courts of juſtice, both civil and criminal, which decide in the laſt reſort, without an appeal to Bern. A bailif reſides there; but his whole employment conſiſts in collecting the tithes. The town contains about two thouſand ſouls.

Near Zoffingen I entered the canton of Lucern, and paſſed through a narrow valley bounded by a chain of hills remarkable for the richneſs and variety of the hanging woods. As I proceeded, the valley expanded; I traverſed a gently waving country, and deſcended to Surzee, a ſmall neat town near the lake of Sempach. From thence I coaſted the weſtern ſide of that lake, a ſmall but beautiful piece of water about three miles in length and one in breadth; the grounds on each ſide ſlope gently to the edge of the water, and are prettily chequered with wood. On the oppoſite banks of the lake, I obſerved the town of Sempach, celebrated for the battle which eſtabliſhed the liberty of the Swiſs, and which I have already mentioned in the preceding letter. The anniverſary of that battle, which happened on the 9th of July, 1386, is ſtill commemorated with great ſolemnity, both at Sempach and Lucern, and ſupplies a copious ſubject for many poems and ballads in the numerous collection of national ſongs.

On the anniverſary, a large body of perſons of all ranks aſſemble on the ſpot where the battle was fought; a prieſt aſcends a pulpit erected in the open air, and delivers a thankſgiving ſermon on the ſucceſsful efforts of their anceſtors on that happy day, which enſured to their country liberty and independence. At the concluſion of this ſermon, another prieſt reads a deſcription of the battle, and commemorates the names of thoſe brave Swiſs who glorioufly ſacrificed their lives in defence of their freedom. Having exhorted thoſe who are preſent to pray for the ſouls of their countrymen, and of the enemies, who fell in that battle, they all repair inſtantly to a ſmall chapel, where maſſes are ſung for the ſouls of the deceaſed. During this ſervice, the people, falling on their knees, pray for their glorious anceſtors, either in the chapel, on the walls of which are painted the deeds of the Swiſs who immortalized themſelves in this conflict, or near four ſtone croſſes which diſtinguiſh the place of combat.

LETTER XXV.—*The lake of Lucern.—Geriſau.—Schweitz.—Origin of the Helvetic Confederacy.—William Tell.—Altdorf.*

THE Waldſtætter See, or lake of the four cantons, is, from the ſublimity as well as variety of ſcenery, perhaps the fineſt body of water in Switzerland. The upper branch, or the lake of Lucern, is in the form of a croſs, the ſides of which ſtretch from Kuſſnach to Dallenwal, a ſmall village near Stantz. It is bounded towards the town of Lucern by cultivated hills ſloping gradually to the water, contraſted on the oppoſite ſide by an enormous maſs of barren and craggy rocks. Mount Pilate riſes boldly from the lake, and is perhaps one of the higheſt mountains in Switzerland, if eſtimated from its baſe, and not from the level of the ſea*. According to General Pfiffer, its elevation above the lake is more than ſix thouſand feet: nevertheleſs its heighth above the Medi-

* Soon after the French took poſſeſſion of Lucern, General Brune erected, with great ſolemnity, the ſtandard of liberty on the top of Mount Pilate; thus conferring on the Swiſs the ſhadow, while he deprived them of the ſubſtance of freedom.

terranean is trifling, in compariſon with that of the Alps we are going to viſit; nor indeed does the ſnow continue all the year upon its ſummit.

Towards the end of this branch, the lake contracts into a narrow creek ſcarcely a mile in breadth; ſoon after again widens, and forms the ſecond branch, or the lake of Schweitz; on the weſtern ſide is the canton of Underwalden, on the eaſtern that of Schweitz. Here the mountains are more lofty, and infinitely varied; ſome covered to their very ſummits with the moſt lively verdure; others perpendicular and craggy; here forming vaſt amphitheatres of wood, there jutting into the water in bold promontories.

On the eaſtern ſide of this branch is the village of Geriſau, at the foot of the Rigi: it is the ſmalleſt republic in Europe. Its territory is about a league in breadth, and two in length; ſituated partly on a ſmall neck of land at the edge of the lake, and partly lying upon the rapid declivity of the Rigi. It contains about 1200 inhabitants: they have their general aſſembly of burgeſſes, their Landamman, their council of regency, their courts of juſtice, and their militia. I was informed that there is not a ſingle horſe in the whole territory of the republic, as indeed might well be ſuppoſed; for the only way of arriving at the town is by water, excepting a narrow path down the ſteep ſides of the mountain, which is almoſt impaſſable. Geriſau is entirely compoſed of ſcattered houſes and cottages of a very neat and pictureſque appearance; each dwelling is provided with a field or ſmall garden. The inhabitants are much employed in preparing ſilk for the manufactures of Baſle. This little Republic is under the protection of the four cantons, Lucern, Uri, Schweitz, and Underwalden; and in caſe of war furniſhes its quota of men. To the ambitious politician, who judges of governments by extent of dominion and power, ſuch a diminutive republic thrown into an obſcure corner, and ſcarcely known out of its own contracted territory, muſt appear unworthy of notice; but the ſmalleſt ſpot of earth on which civil freedom flouriſhes, cannot fail to intereſt thoſe who know the true value of liberty and independence, and are convinced that political happineſs does not conſiſt in great opulence and extenſive empire.

Towards the end of this branch the lake forms a bay, in the midſt of which lies the village of Brunnen*, celebrated for the treaty concluded in 1315, between Uri, Schweitz, and Underwalden, which gave birth to the Helvetic confederacy. Here I landed,

* On the 31ſt of April 1798, Brunnen was again diſtinguiſhed, as the place where deputies from the cantons of Uri, Schweitz, Underwalden, and Glarus, unanimouſly determined to maintain their independence, and to reſiſt the innovations of the French. Even after the ſubjugation of the other parts of Switzerland, theſe intrepid mountaineers defended themſelves with ſuch ſpirit, and made ſuch havoc among the French forces, that General Schawembourg engaged by treaty to reſpect their territory, and accepted their promiſe to admit the new Helvetic conſtitution. The French, however, not ſatisfied with this partial ſubmiſſion, yet unwilling again to encounter the efforts of courage and deſpair, contrived to diſunite the ſmall cantons, and ſeparately to complete their ſubjugation. They obtained from the diet of Arau a decree for impoſing a civic oath of allegiance to the new conſtitution; but the cantons of Uri, Schweitz, Underwalden, and Zug, refuſed compliance. The Helvetic Directory having repreſented to them the danger of reſiſtance, General Schawembourg accompanied this exhortation with a threat, that unleſs they complied, "he would inſtantly march his troops into the rebellious diſtricts."

Their anſwer deſerves to be recorded for its pathetic ſimplicity; "Receive, citizen general, from a people ever true to their engagements, who among their craggy mountains have no comfort but their religion and their liberty, whoſe only riches are their cattle; receive the ſincere aſſurance that they will ever give the French republic every proof of their devotion compatible with their liberty and independence. Accept alſo, citizen general, our ſolemn promiſe never to take up arms againſt the great republic, and never to join its enemies. Our liberty is our only bleſſing; nor will we ever graſp our arms except to defend that liberty." This artleſs remonſtrance had no effect; Uri, Schweitz, and Glarus, deeming all reſiſtance unavailing, took the civic oath; and the lower part of Underwalden, which alone refuſed, was left to its fate. See the note at the end of the next chapter. Planta, p. 456.

and walked through an agreeable and fertile plain, laid out in meadows, and planted with fruit trees, to Schweitz, which ſtands on the ſlope of a hill, at the bottom of two high, ſharp, and rugged rocks, called the *Schwcitzer-Haken*. Its poſition is extremely agreeable. The church, which is a large magnificent building, ſtands in the centre of the place; near it the houſes are contiguous; but in the other part are prettily diſperſed about the gentle acclivities, in the midſt of lawns and meadows, and ſheltered by groves of trees. The principal object of curioſity in Schweitz is a complete collection of the celebrated Hetlinger's medals, poſſeſſed by his nephew. This collection, which he inherited from his uncle, is very valuable, the medals being all of the fineſt impreſſions, and ſeveral extremely rare. From theſe medals M. de Mechel publiſhed his much-eſteemed engravings, to which he has prefixed a life of the artiſt, who was born in the canton of Schweitz, on the 28th of March 1691, and died in 1771, in a very advanced age.

Having re-imbarked at Brunnen, we ſoon entered the third branch, or the lake of Uri; the ſcenery of which is ſo grand, that its impreſſion will never be eraſed from my mind. Imagine to yourſelf a deep and narrow lake about nine miles in length, bordered on both ſides with rocks uncommonly wild and romantic, and, for the moſt part, perpendicular; with foreſts of beech and pine growing down their ſides to the very edge of the water. On the right hand upon our firſt entrance, a detached piece of rock, at a ſmall diſtance from the ſhore, engaged our attention; it is wholly compoſed of ſtones of the ſize and ſhape of bricks, ſo as to appear quite artificial. The ſame kind of natural maſonry may be obſerved in the lofty cliffs which impend over this lake not far from Brunnen. It riſes to about ſixty feet in height; is covered with underwood and ſhrubs, and reminded me of thoſe crags that ſhoot up in the Fall of the Rhine near Schaffhauſen: but here the lake was as ſmooth as cryſtal, and the ſilent ſolemn gloom which reigned in this place was not leſs awful and affecting than the tremendous roaring of the cataract. Somewhat further, upon the higheſt point of the Seeliſberg, we obſerved a ſmall chapel that ſeemed inacceſſible; and below it, the little village of Gruti, near which the three heroes of Switzerland are ſaid to have taken reciprocal oaths of fidelity, when they planned the famous revolution.

On the oppoſite ſide appears the chapel of William Tell, erected in honour of that hero, upon the very ſpot where he leaped from the boat in which he was conveying as a priſoner to Kuſſnach. It is built upon a rock projecting into the lake under a hanging wood: a ſituation amid ſcenes ſo ſtrikingly awful, as muſt ſtrongly affect even the moſt dull and torpid imagination! On the inſide of this chapel, the ſeveral actions of William Tell are coarſely painted. While we were viewing them, we obſerved the countenances of our watermen gliſtening with exultation, as they related, with much ſpirit and ſenſibility, the cruelties of Geſler, governor of Uri, and the intrepid behaviour of their glorious deliverer. Indeed I have frequently remarked with pleaſure the national enthuſiaſm which generally prevails in this country, and greatly admired the fire and animation with which the people diſcourſe of thoſe famous men among their anceſtors; to whom they are indebted for that happy ſtate of independence they now enjoy. This laudable ſpirit is continually ſupported and encouraged by the numerous ſtatues, and other memorials, of the antient Swiſs heroes, common in every town and village. Among theſe, Tell is the moſt diſtinguiſhed, and ſeems to be the peculiar favourite of the common people; the reaſon is obvious; for his ſtory partakes greatly of the marvelous.

A few years ago a treatiſe, entitled *Fable Danoiſe*, was publiſhed at Bern; in which the author calls in queſtion the hiſtory of William Tell. Though his arguments in ge-

neral are by no means concluſive, yet he mentions two circumſtances which, if true, are convincing proofs, that much fiction is interwoven with the whole account. He aſſerts that the incident of Tell's ſhooting the apple from the head of his ſon is not recorded in any of the contemporary hiſtorians, although they give the minuteſt accounts of the governor's tyranny; and that the firſt writer who takes notice of it is Etterlin of Lucern, who lived in the latter end of the fifteenth century, near two hundred years after the fact is ſuppoſed to have happened. Beſides, a ſtory of the ſame kind is related in the Daniſh annals by Saxo Grammaticus, with ſcarcely any difference but that of names: Harold King of Denmark ſupplies the place of the governor of Uri, Tocco that of William Tell; and this event which is ſaid to have happened in 965, is attended alſo with nearly the ſame incidents, as thoſe recorded in the Swiſs accounts *. It is far from being a neceſſary conſequence, that becauſe the authenticity of the ſtory concerning the apple is liable to ſome doubts, *therefore* the whole tradition relating to Tell is fabulous. Neither is it a proof againſt the reality of a fact, that it is not mentioned by contemporary hiſtorians. The general hiſtory of William Tell is repeatedly celebrated in old German ſongs, ſo remarkable for their antient dialect and ſimplicity, as almoſt to raiſe the deeds they celebrate above all reaſonable ſuſpicion: to this may be added, the conſtant tradition of the country, together with two chapels erected ſome centuries ago, in memory of his exploits.

The three cantons were ſo much offended with the author for doubting the exploits of their antient hero, that they preſented a remonſtrance to the ſovereign council of Bern, and the pamphlet was publicly burnt at Uri. In this inſtance their national prejudices (if they really deſerve that name) become, in ſome meaſure, meritorious and reſpectable.

Landing at Fluellen, I had an opportunity of obſerving that the croſs-bow is ſtill much uſed, as I ſaw ſeveral very young boys, each with that inſtrument in his hand. Obſerving a butt at a ſmall diſtance from the place, I told them, that thoſe who hit the mark ſhould receive a penny for their dexterity. Upon this intimation, three boys took aim ſucceſſively, two of whom touched the very centre of the butt, and obtained the prize: but the third miſſing, I made him ſhoot till he hit the mark; which after two or three trials, he performed.

From Fluellen we walked to Altdorf, the capital burgh of the canton of Uri, ſituated in a narrow vale almoſt entirely ſurrounded by ſtupendous mountains. It contains ſeveral neat houſes; the tops whereof are covered with large ſtones, in order to prevent the roofs being carried away by the hurricanes frequent in theſe mountainous countries.

When the greater part of Helvetia was ſubject to the empire, the inhabitants of Uri, Schweitz, and Underwalden, had long enjoyed the moſt conſiderable privileges, particularly the right of being governed by their own magiſtrates: the clergy and many of the nobles, indeed, had fiefs and ſubjects in thoſe reſpective territories; but the bulk of the people formed ſeveral communities almoſt independent. During the twelfth century, various diſputes between the three cantons and the emperors united them more firmly, and they were accuſtomed, every ten years, to renew formally their alliance. Such was their ſituation at the death of Frederic II. in 1250. From this period, or ſoon afterwards, commenced the interregnum in the empire: during that time of

* As Saxo Grammaticus is an author but little known, and the paſſage in queſtion is exceedingly curious, the reader will find it inſerted at the end of this volume. It is but juſtice to add, that ſome perſons queſtion the authenticity of this paſſage, and ſuppoſe it to be ſpurious.

anarchy,

anarchy and confuſion, the nobles and biſhops endeavouring to extend their power, and to encroach upon the privileges of the people, Uri, Schweitz, and Underwalden, threw themſelves under the protection of Rhodolph of Hapſburg, who, in 1273, being choſen Emperor, terminated the interregnum. Rodolph received a ſmall revenue from theſe cantons, and appointed a governor, who had cognizance in all criminal cauſes, but expreſsly confirmed the rights and privileges of the people.

Rhodolph, ſometime after his acceſſion to the imperial throne, liſtened to the ambitious ſchemes of his ſon Albert, who was deſirous to form Helvetia into a duchy. For this purpoſe the Emperor purchaſed the domains of ſeveral abbeys, and other conſiderable fiefs in Switzerland, as well in the canton of Schweitz as in the neighbouring territories.

The three cantons alarmed at this great increaſe of power, obtained a confirmation of their privileges, which, upon the death of Rodolph, was renewed by his ſucceſſor Adolphus of Naſſau. But when Albert was elected emperor, he refuſed to ratify their rights, and, in order totally to ſubdue the people, placed over them two governors, who committed many flagitious acts of tyranny and oppreſſion.

Under theſe circumſtances Werner de Staffach of Schweitz, Walther Furſt of Uri, and Arnold de Melchthal of Underwalden, planned the famous revolution which took place January 13, 1308, and reſtored liberty to the three cantons; and Albert, as he was preparing to attack them, was aſſaſſinated by his nephew John of Hapſburg *. In 1315, Leopold Duke of Auſtria marched againſt the confederate cantons, at the head of twenty thouſand troops, and, endeavouring to force his way into Schweitz at the paſs of Morgarten, received a total defeat from thirteen hundred Swiſs poſted upon the mountains. If we may believe contemporary hiſtorians, the Swiſs loſt but fourteen men in this memorable engagement, which inſured their independence. In the ſame year, the three cantons contracted a perpetual alliance, which was ratified at Brunnen, and is the grand foundation of the Helvetic Confederacy. Such were the feeble beginnings of a league, ſince become ſo formidable by the acceſſion of ten cantons, and by the additional ſtrength of its numerous allies; and it is remarkable, that Switzerland is the only country which, on the one ſide, has confined the limits of the German empire, and, on the other, has ſet bounds to the French monarchy †.

The name of Schweitzerland, or Switzerland, which originally comprehended only the three cantons of Uri, Schweitz, and Underwalden, was afterwards extended to all Helvetia. It derived that appellation either from the canton of Schweitz, as having particularly diſtinguiſhed itſelf in the revolution of 1308, and alſo at the battle of Morgarten; or becauſe the Auſtrians called all the inhabitants of theſe mountainous parts by the general denomination of Schweitzers.

Switzerland was the rock on which the Houſe of Auſtria ſplit, during more than a century. Blinded with reſentment againſt their former ſubjects, and anxious to recover their loſt domains, the ſeveral dukes led in perſon conſiderable armies to ſubdue a nation, whoſe ſpirit was unconquerable, and to obtain poſſeſſion of a country, which was eaſily defended againſt the moſt numerous troops. They neglected ſeveral opportunities of aggrandizing themſelves in other parts, and, ſlighting what was more feaſible, bent their whole efforts to acquire what in its very nature was unattainable. The conſequence of this miſtaken policy was, a ſucceſſion of defeats, attended with a prodigious expence, and

* See Letter 14.

† The reader will pleaſe to recollect that this letter was written before the fatal progreſs of the French revolution.

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the loſs of their braveſt troops, until at length, convinced of their error, they totally relinquiſhed an attempt, in which they had expended ſo much fruitleſs blood and treaſure. But although ſeveral emperors of that Houſe occaſionally made alliances with the Swiſs cantons, yet it was not till the treaty of Weſtphalia that their independence was fully and finally acknowledged by Ferdinand III. and the whole empire.

The government of Uri and Schweitz is entirely democratical, and nearly the ſame. The ſupreme power reſides in the people at large, who are divided into ſeveral communities, from which are choſen the councils of regency. In the *Lands-gemeind*, or general aſſembly, the Landamman, and the principal magiſtrates, are elected; and every burgher, at the age of fourteen, in the cantons of Uri and Underwalden, and of fifteen in Schweitz, conſiſt each of ſixty members, and reſide at the capital burgh; in theſe councils the executive power is veſted, and from their bodies the principal magiſtrates are choſen.

Theſe two cantons contain, including their ſubjects, about fifty thouſand ſouls, and in caſe of neceſſity could furniſh above twelve thouſand militia. All the Catholic cantons enjoy conſiderable ſubſidies from France. Every burgher, at the age of fourteen, in Uri, receives annually about ſix livres, or five ſhillings: the Landamman and the magiſtrates more in proportion. The canton of Schweitz being for ſome time diſcontented with France, withdrew its troops from that ſervice: but this year (1776) the matter has been accommodated; and the king pays annually to every male child of a burgher four livres, commencing from the time of his birth.

The ſame kind of ſoil, and the ſame productions, are common to the two cantons: the whole country being rugged and mountainous, conſiſts chiefly of paſture, produces little corn, and has no vines. We cannot but obſerve with aſtoniſhment, to what a degree of fertility the natives have improved a land, naturally barren, and for which they fought with as much zeal and intrepidity, as if they contended for the richeſt plains of Sicily or Aſia Minor. In theſe little democratical ſtates, ſumptuary laws are not neceſſary; for they ſcarcely know what luxury is. The purity, or (as ſome perhaps would call it) the auſterity of morals, which ſtill prevails among theſe people, cannot eaſily be imagined by the inhabitants of opulent cities; and I cannot reflect on that affectionate patriotiſm which ſo ſtrongly attaches them to their country, without calling to mind that beautiful deſcription of the Swiſs peaſant, in Goldſmith's Traveller.

> "Dear is that ſhed to which his ſoul conforms,
> "And dear that hill which lifts him to the ſtorms:
> "And as a child, when ſcaring ſounds moleſt,
> "Clings cloſe and cloſer to the mother's breaſt;
> "So the loud torrent, and the whirlwind's roar,
> "But bind him to his native mountains more."

Every ſtep we now advance, we tread, as it were, upon ſacred ground; monuments continually occur of thoſe memorable battles, by which the Swiſs reſcued themſelves, from oppreſſion, and ſecured the enjoyment of their invaluable freedom. I am now indeed in the very centre of civil liberty; would I could add of religious too! but the church of Rome is here excluſively eſtabliſhed. It muſt be acknowledged, however, that this intolerant ſpirit is not wholly confined to the Catholic cantons; for, in the Proteſtant diſtricts, Calviniſm is alone admitted: thus a nation, who prides herſelf upon her freedom, denies the free exerciſe of religion to every other ſect except that which predominates. Is not this ſtriking at the firſt principle, and moſt valuable privilege, of genuine liberty?

Long

Long as my letter already is, I cannot forbear mentioning a peculiar cuſtom obſerved in ſome of theſe democratical ſtates: every perſon who is choſen for a bailliage, or lucrative office, is obliged to pay a certain ſtipulated ſum into the public fund. This practice is attended with one ill conſequence at leaſt; as the ſucceſsful candidate is in ſome meaſure authorized to ſtretch his prerogatives, in order to ſwell the profits of his charge. Accordingly, it is a general remark, that in the common bailliages, the bailifs appointed by the popular cantons are more apt to be guilty of exactions than thoſe of the ariſtocratical republics. I am, &c.

LETTER XXVI.—*Canton of Underwalden.—Sarne.—Saxelen.—Tomb and Character of Nicholas de Flue.—Stantz.—Engelberg.—Paſſage over the Suren Alps to Altdorf.*

INSTEAD of proceeding, as in my former tour, from Lucern to Altdorf by water, I made an agreeable excurſion to Sarne, Saxelen, and Stantz, in the canton of Underwalden, viſited the abbey of Engelberg, and traverſed the Suren Alps to Altdorf.

Having diſpatched my baggage by water to Altdorf, I walked, in company with M. Meyer, member of the Great Council of Lucern, through a pleaſant plain, lying between Mount Pilate and an oppoſite ridge of hills, to Winke, a village ſituated on an inlet of the lake of Lucern. There I took boat, and rowing acroſs the inlet, diſembarked near Alpnach, in the canton of Underwalden, and continued along a foot-way, which winds through encloſures of rich paſture-land, browſed by numerous herds of fine cattle, and prettily chequered with ſcattered cottages. Having croſſed a ſmall river, I arrived at Sarne, the capital burgh of that diviſion of the canton called Oberwalden, wherein the *Land-rath*, or ſupreme court of judicature, aſſembles for the purpoſe of deciding civil and criminal proceſſes. This tribunal is compoſed of fifty-eight judges, who are choſen by the people, and continue in office for life. In criminal affairs of any notoriety, each of theſe is empowered to bring into court two individuals; and this tribunal, thus conſiſting of a hundred and ſeventy-four members, aſſembles in a large open hall in the town-houſe, and paſſes final ſentence.

At Sarne I embarked upon the Aa, and aſcending its ſtream entered the lake of Sarne, a piece of water about three miles long, and one and a half broad, pleaſantly encloſed between the mountains, and its riſing borders richly variegated with paſtures and trees. I landed at Saxelen, which ſtands on its weſtern ſhore; a neat village much frequented, as the native place of the celebrated ſaint and patriot Nicholas de Flue, to whoſe honour a church has been lately erected. The interior is ornamented in a pleaſing ſtyle of architecture. Ten elegant columns of black marble ſupport the roof; they are about twenty-four feet in height, and many of them of a ſingle piece. They were hewn out of a quarry in the Melchthal, about nine miles from Saxelen, and dragged from thence by the peaſants, who voluntarily performed this taſk, which they conſidered as an act of religious duty: a laborious enterpriſe, to convey ſuch heavy burdens down ſteep precipices and over pathleſs rocks, where they could neither be aſſiſted by horſes nor oxen!

Under a glaſs caſe in the midſt of the church are depoſited the bones of this favourite object of national worſhip, fantaſtically ornamented, according to the Roman Catholic cuſtom, with gold and precious ſtones. His real burial-place is ſtill to be ſeen in a ſmall adjoining chapel; it is a ſimple grave-ſtone, on which his figure is coarſely carved in ſtone, the work of the age in which he lived. A little above this antient monument is placed another grave-ſtone, bearing alſo his figure, executed in later times, leſs rude,

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but ſtill of coarſe workmanſhip. On entering this chapel I obſerved numerous pilgrims of both ſexes, who were kneeling before his tomb, and praying with the greateſt fervency; many, in the ardour of devotion, threw themſelves between the two graveſtones, and ſtretching themſelves upon the moſt antient figure, repeatedly kiſſed and embraced it.

Nicholas de Flue, this object of national enthuſiaſm, was born at Saxelen in 1417. Deſcended from an antient family, he ſignalized himſelf in defence of his country, and particularly during the war which the Swiſs ſupported againſt Sigiſmond Archduke of Auſtria. He was no leſs remarkable for humanity than valour. To his countrymen preparing to pillage and burn the convent of St. Margaret near Dieſſenhoſen, he exclaimed, "If God grants you the victory over your enemies, uſe it with moderation, and ſpare thoſe edifices which are conſecrated to him." This remonſtrance was attended with effect, and the convent was ſaved from deſtruction. To the moſt excellent qualities of the heart and underſtanding, to great political ſagacity, he added the exterior graces of figure, dignity of character, and the moſt winning affability. Raiſed by his countrymen to high employments in the ſtate, he repeatedly declined the office of landamman from motives of delicacy, becauſe he diſapproved the principles of the governing party. At length, hurried away by his deteſtation of evil, and a zeal for monkiſh devotion, he quitted his family in the fiftieth year of his age, and, retiring from the world in a fit of gloomy ſuperſtition, turned hermit. The place of his retreat was at Ranft, a few miles from Saxelen, where he built an hermitage and a ſmall chapel, and practiſed all the ſeverities required by that auſtere mode of life with the ſtricteſt obſervance.

But the flame of patriotiſm, although ſmothered in his breaſt by an ill-directed zeal for miſtaken duties, was not extinguiſhed; and he was the happy inſtrument in reſcuing Switzerland from the impending horrors of civil diſcord. At the concluſion of the war with Charles the Bold, Friburgh and Soleure having contracted an alliance with Zuric, Bern, and Lucern, the treaty was conſidered by Uri, Schweitz, Underwalden, Zug, and Glarus, as a breach of the former union. After various diſputes and fruitleſs conferences, the deputies of the eight confederate cantons aſſembled in 1481 at Stantz, in order to compromiſe the differences.

Both ſides were ſo heated with mutual animoſities, that the deputies were on the point of ſeparating without effecting a reconciliation, and a civil war appeared inevitable. In this criſis of affairs, de Flue no ſooner heard of the public diſſentions, than his patriotiſm prevailed over his ſuperſtition; and he quitted his unprofitable hermitage to exert thoſe active and public virtues, the loweſt of which ſingly outweighs whole years of uſeleſs mortification. Accordingly this extraordinary man, though in the 64th year of his age, travelled during the night, and arrived at Stantz on the very morning in which the deputies were preparing for their departure. He earneſtly conjured them to remain; and having prevailed upon them once more to aſſemble, he ſo forcibly repreſented the deſtructive conſequences of diſunion, that they choſe him arbiter of the diſpute. By his ſole mediation all differences were amicably adjuſted, and by his advice Friburgh and Soleure were inſtantly received into the Helvetic Confederacy: ſuch was the effect of his perſuaſive and conciliatory eloquence! Having thus happily compoſed the public diſſentions, he returned to his hermitage, where he died, in 1487, in the 70th year of his age, regretted and eſteemed by all Switzerland. Such a general opinion of his extreme piety prevailed among his contemporaries, that the bigotry of thoſe times aſcribed to him an exemption from the common wants of human nature.

In the regiſter of the church of Saxelen, the following notice is inſcribed for 1485, the year antecedent to his death: "In 1417, Nicholas de Flue, a ſaint, was born in the pariſh of Saxelen; who afterwards retired into a deſart called Ranft, where God ſuſtained him during eighteen years, without eating or drinking for a long time, namely, when this was written; and he is now in good eſtate, and of holy life."

On his tomb is inſcribed: "Nicholas de Flue quitted his wife and children to go into the deſart: he ſerved God nineteen years and a half without taking any ſuſtenance. He died in 1487."

This frivolous epitaph ſtrongly marks the bigotted ſpirit of that dark age in which it was compoſed: the narrow-minded author, totally overlooking the patriot in the hermit, ſaw nothing ſo truly meritorious in the life of the deceaſed, as the ſuppreſſion of thoſe ſocial energies which dignify human nature, in order to practiſe the debaſing auſterities of a ſuperſtitious religioniſt. He ought to have inſcribed, "To the memory of Nicholas de Flue, who quitted his hermitage to appear in the world; who reſtored peace and harmony to the republics of Switzerland, and who ſerved God by ſerving his country."

From Saxelen we intended to viſit Ranft, de Flue's hermitage, and from thence to proceed down the Melchthal and over the mountains to Engelberg; but as the evening was already beginning to cloſe, we durſt not venture along ſo difficult a paſſage, which would have employed us at leaſt five hours; we thought it therefore moſt prudent to continue our route towards Stantz. We followed the footpaths, which wind agreeably, ſometimes through foreſts, ſometimes over the fields and meadows; and paſſed through a fertile but wilder and more romantic part of the canton, than that which we traverſed in the morning. We continued for ſome way at the foot of the Stantzberg, croſſed a ſmall plain formerly a lake, in which ſtaples for mooring veſſels are occaſionally diſcovered; and in about three hours after our departure from Saxelen arrived at Stantz, in the duſk of the evening.

About three miles from Stantz is a ſmall wood called the *Kern-wald*, which we traverſed in our route from Saxelen; it would not be worthy of mention, did it not ſeparate the canton into two diviſions, called *Oberwald* and *Underwald* *. Formerly the whole canton was under the ſame general adminiſtration; but diſagreements ariſing between the inhabitants of the two diſtricts, they have ſince formed two republics, and have each their *lands-gemeind*, or general aſſembly, their landamman, and council of regency: for the management of external affairs there is a joint council, choſen equally by the two diviſions; at the Helvetic Diet they ſend but one deputy, and regulate their vote by mutual conſent. Stantz is the ſeat of civil and criminal judicature, and it is worthy of remark, that every male of the age of thirty is permitted to give his vote for the acquittance or condemnation of a criminal.

Stantz, the capital of Underwalden, is ſituated in a beautiful plain of paſture, about two or three miles in breadth, at the foot of the Stantzberg, and at a little diſtance from the lake of Lucern. The town and environs, delightfully ſprinkled with numerous cottages, are extremely populous, containing, perhaps, not leſs than five thouſand ſouls. The church is a tolerably handſome building, and is decorated in the inſide with ten black marble pillars of large dimenſions, but not ſo beautiful as thoſe at Saxelen. The women in theſe parts dreſs their heads in a ſingular manner, and extremely

* Above the wood, and Below the wood; *wald* in German ſignifying a wood.

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unbecoming: they wear black-beaver cocked hats, ſimilar to thoſe of the men, with black ears to their caps, which almoſt conceal their hair *.

The next morning the abbot of Engelberg, previouſly informed of our intended viſit, politely ſent horſes to Stantz; and we rode through a fertile valley, encloſed between the Stantzberg and a chain of hills, until we arrived at Graffen-ort, a ſmall villa belonging to the abbot, about two leagues from Stantz. Here we began to aſcend along a road winding by the ſide of a ſteep precipice, and through "*unſunned foreſts*" of beech intermingled with poplar, mountain aſh, Spaniſh cheſnuts, and pines, the torrent Aa impetuouſly foaming in a ſtony channel, and forming a ſucceſſion of cataracts. The wild horrors of the circumjacent rocks, the inceſſant roaring of the waters, and the ſolitary gloom of the foreſt, reminded me of Gray's beautiful Ode on the Grande Chartreuſe, in which he deſcribes ſimilar ſcenes with a ſublimity and truth which every perſon of taſte, who travels through theſe magnificent regions, muſt feel and admire:

Per invias rupes, fera per juga,
Clivoſque præruptos, ſonantes
Inter aquas, nemorumque noctem.

* This tranquil and happy diſtrict became the ſcene of unexampled carnage, and the handful of natives who ventured alone to reſiſt the aggreſſion of the French were almoſt wholly exterminated. The inhabitants of Schweitz and Underwalden, being required to take the civic oath, ſent deputies to Lucern, and afterwards to Arau, who appealed to the ſtipulations of the treaty granted by General Schawembourg. They were received with inſult and indignity, and returned with the following anſwer: "You, as well as the other cantons, muſt take the oath; and you muſt further give up to us, alive or dead, nine of your principal leaders, and among them three of your clergy. Many hundreds more ſhall ſhare the ſame fate. The conſequences of your obſtinacy ſhall be held out as an example to the whole world."

Intimidated by this threat, Schweitz and the upper diſtrict of Underwalden complied with the injunction; but the meſſage of the Swiſs Directory having been read to a general aſſembly of the lower diſtrict, excited indignation and horror; and they unanimouſly reſolved to be buried in the ruins of their country rather than ſurrender their fellow-citizens in ſo diſhonourable a manner. About 1500 took up arms, and, without the ſmalleſt hope of foreign aſſiſtance, prepared to reſiſt the whole force of the French, and to die rather than ſurvive their expiring liberty. Having entrenched themſelves on the borders of the lake, and at the entrance of the valley of Stantz, with their women and children, they firmly waited the attack. The French advanced to the aſſault in ſeparate columns, ſome croſſing the lake in armed veſſels, and others marching over the mountains.

On the 3d of September hoſtilities commenced; the French were repulſed in different onſets; on the 9th two veſſels being ſunk with 500 men, the French were intimidated, and refuſed to proceed, until a party, encouraged by the promiſes, and urged by the threats of Schawembourg, diſembarked and forced the entrenchments. At the ſame time two other columns landed at different points, and the corps ruſhing from the mountains, fell upon their rear. The ſmall but heroic band, ſhut up in a narrow defile, and ſurrounded by a force ten times their number, ſuſtained the aſſault with unparalleled courage.

"Then began," ſays an eye-witneſs of this deſperate conflict, "the battle and the carnage. Our ruſtic heroes fire on every ſide, fight foot to foot, ruſh among the enemies' ranks, ſlay and are ſlain. Theſe mountaineers were ſeen preſſing French officers to death in their nervous arms; old men, women, and children, roufed by the noble example, and catching the enthuſiaſm of their ſons, huſbands, and fathers, appeared throwing themſelves into the midſt of the French battalions, arming themſelves with clubs, pikes, pieces of muſkets, nay the very limbs of the human body, ſtrewing the ground with carcaſes, and falling with the ſatisfaction of having fought to maintain their native land free from a foreign yoke."

The French, exaſperated at this incredible reſiſtance, put to the ſword not only their opponents on the field of battle, but involved all whom they met in indiſcriminate ſlaughter, and the valley from one end to the other became a prey to pillage, flames, and carnage.

Two hundred natives of Schweitz, hearing the cannonade, were aſhamed of having deſerted their brethren, and haſtily arming themſelves, forced the poſt which the French had eſtabliſhed at Brunnen, and towards the end of the day approaching Stantz, ſaw the conflagration, which ſhowed the fatal event of the action. They devoted themſelves to revenge the fate of their countrymen, and after exterminating above 600 of their enemies, fell on the field of battle.

This was the laſt conflict of expiring liberty in Switzerland; had the united Swiſs acted with equal ſpirit, the country would yet have been free.

The fall of Underwald, by an eye-witneſs, Mallet, vol. ii. p. 40.

Iſſuing from the dark foreſt, we deſcended for a little way, and unanimouſly broke into an exclamation of ſurpriſe and delight, as we ſuddenly looked down upon a picturesque plain of an oval ſhape beautifully wooded, watered by ſeveral lively ſtreams, enclosed within a circle of gentle hills, and terminated by a majeſtic amphitheatre of "*cloud-capt alps*;" toward the extremity of this plain the abbey, a large quadrangular building of ſtone, is ſituated at the foot of the *Engelberg*, or Mountain of *Angels*; from which the whole diſtrict takes its name. On alighting from our horſes, the abbot politely received and conducted us into a large ſaloon, where ſoon afterwards dinner was ſerved with all the plenty of feudal times, and all the comforts of the preſent age. The company at table conſiſted of the abbot, five or ſix benedictines, ourſelves, and our ſervants, who, according to the cuſtom of the place, ſat down to the ſame hoſpitable board with their maſters. This intermixture of ſociety, the politeneſs of the worthy abbot, and the facetious cheerfulneſs of one among the fathers, rendered the repaſt as agreeable as it was uncommon. After dinner we viſited the library, which contains about ten thouſand volumes; and, among many rare editions, above two hundred printed in the fifteenth century. I noticed a much larger collection of modern hiſtorical and miſcellaneous works than are uſually found within the walls of a monaſtery, which does honour to the taſte of the abbot, and proves him a warm friend to polite literature.

The weather being fine and clear I ſtrayed about the environs, admiring the ſcattered hamlets, the beautiful tufts of wood, and the lively ſtreams which murmur through the plain; of theſe, one called the Melt-bach, which I obſerved iſſuing copiouſly from the ground, begins to flow on the firſt melting of the ſnow in the month of May, and ceaſes towards the end of September, and the Grieſen-bach, that riſes at the foot of Mount Blake, runs only from mid-day to the ſetting ſun. Several other torrents, that pour down from the neighbouring glaciers, and numerous ſprings that burſt from the ground near the abbey, help to ſupply the Aa, which ruſhes from the Suren Alps, and, ſwelled with theſe tributary waters, haſtens to throw itſelf into the lake of Lucern. The amphitheatre of cloud-capt mountains is formed by the Melkleberg, the Arniberg, the Blakeberg, the Spitze-ſtock, the Suren Alps with their brown peaks boldly riſing from the boſom of the ſnow, the Engelberg towering in naked majeſty, and, the moſt elevated and moſt beautiful in the whole chain, Mount Titlis, ſupporting on its top an immenſe glacier.

About ſeven in the afternoon we ſat down to ſupper; in the midſt of the repaſt we were ſuddenly ſtruck with an awful thunder-ſtorm, which, though it could not be called the muſic of the ſpheres, or ſuch as, according to the legends of the abbey, was performed on the top of the Engelberg, by a choir of angels, at the conſecration of the convent; yet produced a moſt ſublime effect, when re-echoed by the ſurrounding mountains.

The abbot, choſen by a majority of ſixteen benedictines, who compoſe the chapter, is ſovereign lord over the land of Engelberg, a tract of country about ſixty miles in circumference, and under the protection of Lucern, Uri, Schweitz, and Underwalden. The ſmall plain in which the abbey is ſituated is the only habitable part of this diſtrict, and contains fifteen hundred ſouls; the remaining portion, being entirely mountainous, affords in ſummer a retreat to numerous herds of cattle. The abbot, to whom we were indebted for ſo polite a reception, is Leodigar Saltzman, a native of Lucern, who, ſince his elevation to his preſent dignity, has been a kind and indulgent maſter: finding many of his ſubjects extremely poor and indolent, he has excited them to induſtry; and in order to aſſiſt them during the winter months, when agriculture is ſuſpended, employs them in winding ſilk, which he imports from Italy. He poſſeſſes very conſiderable power,

power, which renders him nearly abſolute: in all criminal caſes he arreſts and impriſons; appoints the perſon who examines; can order, if he thinks it neceſſary, the infliction of torture, and can pardon or mitigate the ſentence given by the tribunal of the country, called *landſgericht*. In civil cauſes his influence is very conſiderable; he appoints, from twelve candidates ſelected by the people, the ſeven judges, who, in conjunction with the *thalamman* and *ſtathalter*, form the *landſgericht*, which decides in the firſt reſort: he can alſo diſplace them if he pleaſes, and abſolutely nominates all the judges of the *geiſtlichen-gericht*, or eccleſiaſtical court, which receives appeals from the deciſions of the former tribunal. His power is reſtricted in the following inſtances. If he is engaged in a law-ſuit with an individual, the award of the country tribunal is final, and if with the whole community, the queſtion is decided by the four cantons of Lucern, Uri, Schweitz, and Underwalden.

His revenues amount to about 5000l., and are derived partly from tithes of certain eſtates in the free bailliages of Switzerland, and from a few feudal rights, but principally from the exportation of cheeſe. Beſide thoſe which are made on the paſtures belonging to the abbey, he purchaſes others from the peaſants of his little territory, and diſpoſes of the whole on his own account. About eighteen hundred cows, including the cattle of the convent, are poſſeſſed by the natives of Engelberg, and annually ſupply milk for about 10,000 cheeſes, each weighing from 25 to 50 pounds, and ſelling, on an average, for 15 florins, or 1l. 5s. per hundred weight: and it may be calculated that the abbot circulates annually to the value of 4000l. This revenue, however, cannot be conſidered as his own private property; for he pays the current expences of the abbey *.

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* On the 1ſt of April 1798 the reſpectable abbot reſigned his ſovereignty, in a letter to Mengaud, the French reſident in Switzerland.

"Citizen Miniſter,—We fulfil a duty highly agreeable to us, in forwarding to you the encloſed act, in which we voluntarily re-eſtabliſh the people of the valley of Engelberg in their ſovereign rites. We flatter ourſelves that you will acknowledge in this conduct the purity of our intentions, and our extreme eagerneſs to render ourſelves worthy of the friendſhip of the French republic. We hope, Citizen Miniſter, that you will make our ſentiments known to the Directory of the Great Nation, and recommend us to the continuance of its eſteem and kindneſs. Health and reſpect!

(Signed) LEODEGARIUS Abbot, and MAURICE MULLER Prior."

Mengaud returned this inſulting anſwer, which announced the diſſolution of their community:

"I have read with pleaſure your letter of the 1ſt of April, in which you announce the re-eſtabliſhment of the people of the valley of Engelberg in their ſovereign rights. I commend this natural reſtitution of antiquated uſurpations, eternally contrary to thoſe impreſcriptible rights of nature, to the enjoyment of which men are indiſcriminately called. This acknowledgment on your part of a ſacred and unalienable principle, is without doubt of great value; and under this point of view, citizen monks, you are commendable; but be ſtill more ſo. Do not wait till philoſophy expels you from the aſylum of indolence and inutility. Quit the livery of ſuperſtition, return to ſociety, and diſplay virtues ſufficient to bury in oblivion thoſe years which have been conſecrated to monaſtic nullity." *Moniteur, 8th Floreal.*

The reſpectable abbot of Engelberg died of chagrin, ſoon after he received the inſulting letter of Mengaud. The unfeeling conduct of the French agent, and the virtues of the venerable abbot, are deſcribed in a recent publication; and the truth of the account muſt forcibly ſtrike the reader, as the author cannot be ſuſpected of partiality to the ariſtocracy and clergy of Switzerland.

"With infinite concern I read that part of the letter which ſpeaks of the death of the abbot of Engelberg. It ſeems this venerable prieſt did not long ſurvive the violent attack of the commiſſary Mengaud. * * *

"The image of the venerable abbot for ever fills my imagination. His letter to the French commiſſary was ſo unlike the meſſage of a ſovereign prince, of a neutral and independent power, that it was framed to have flattered the vanity, and ſoftened the violence, of the moſt intrepid revolutioniſt. Alas! he had been no enemy to the French revolution!—he loved mankind too well to condemn an experiment in its favour: to promote general happineſs was the ſole purpoſe of his life, and, while the abbot of Engelberg exiſted, there

Several ineffectual expeditions have been made towards attaining the ſummit of Mount Titlis, the moſt elevated mountain in theſe parts, and perhaps ſcarcely inferior to the Schreckhorn and Jungfrauhorn; it was for a long time conſidered as inacceſſible: but, as tradition reported, that in the year 1739 three men had aſcended, Freygrabend, a native of Engelberg, and phyſician to the abbot, a few days after my departure from the convent, ſucceeded in a ſimilar attempt. The following account of this expedition is extracted from a German letter, written by the phyſician himſelf to a friend at Lucern:

"Early in the morning on the 14th of September, the weather being fine and clear, I ſet out with eleven companions, among whom were Jerom Dopler and Conrad Stocher, two friars of the convent. About two in the morning, after aſcending through Gerſchne, and Unter and Ober-laub, we reached, at break of day, the ſummit of the Laubergrat. Here we enjoyed a fine view over the canton of Underwalden, the lake and canton of Lucern, the free bailliages, and the canton of Zug. Having taken ſome refreſhment, and repoſed ourſelves a quarter of an hour, we put on our crampons, and purſued our route, eager, like the giants of old, to ſcale the ſteep ſides of Mount Faulblatten. We continued about an hour along the piked ridge of this mountain, tottering by the ſide of tremendous precipices, and twice climbing an aſcent almoſt perpendicular. We could not obſerve any trace of the ſmalleſt vegetation. Having gained the higheſt point of the Faulblatten, we arrived at a glacier, which being fortunately covered with freſh ſnow, rendered the ice leſs ſlippery than uſual.

"Hitherto our courſe was attended with ſome danger, but from hence we aſcended and reached with little difficulty the top of the Titlis, called *Nollen*. But here we were obliged to croſs a deep chaſm, and to mount the ſides of the ice, which were as perpendicular as a wall, by forming ſteps for our feet with the iron ſpikes of our poles: below us was a valley of ice about ſixteen miles in length, deſcending rapidly towards Oberhaſli. It was now about ten in the morning, and the ſun was extremely bright. Having walked a few paces, the proſpect was on all ſides open and unbounded. This ſublime, yet dreary ſcene, though it ſurpaſſes all deſcription, made an impreſſion on my mind which I ſhall never forget.

"Here the painter and poet would find ample and endleſs employment, if the colours of the painter and the conceptions of the poet could reſiſt the effects of the extreme cold. The firſt objects which caught our attention, were the Alps of the Vallais, Bern, and Savoy, with their glaciers and vallies of ice; a majeſtic and tremendous ſcene. Among numerous mountains which roſe before us, Mont-Blanc, though at ſome diſtance, reared its head above the reſt; near us towered the Schreckhorn, Wetterhorn, and Jungfrauhorn, but leſs elevated in appearance than the point on which we ſtood. Below us we obſerved a valley of ice about two miles in breadth, and of ſuch immenſe length, that one extremity ſeemed to join Mont-Blanc, and the other to be cloſed

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there was at leaſt one ſovereign prince who lived only for his people; who for them had corrected the frugality of nature; who had formed a paradiſe on the icy confines of the world; who had excluded the moral winter of the ſoul, and, while the tempeſt raged without, had opened a ſpring of happineſs in every heart; * * * * * * —who had not only ſcattered bleſſings in profuſion, but made his people participators of his power." * * *

"The gentle ſpirit of the good old abbot was not proof againſt ſuch a rude compound of ignorance and inhumanity. He appeared fitted for the enjoyment of a long and virtuous old age, but has ſunk prematurely to the tomb! The remembrance of his virtues will be for ever embalmed in my heart; he ſleeps ſecure from farther inſult; but his convent becomes the prey of revolutionary inquiſitors."—*Sketches of the State of Manners and Opinions in the French Republic at the Cloſe of the Eighteenth Century.*

by the Titlis. To the eaſt, the Rothſtock, the Plangen, and the mountains of Uri, neither ſo wild nor ſo elevated as thoſe to the ſouth; and towards the north-weſt, the eye repoſed itſelf over the leſs dreary and more cultivated parts of Switzerland, as far as the borders of Alſace and Suabia. Immediately below us we noticed the abbey, and heard the ſound of ſeveral mortars, which the abbot ordered to be fired as a ſignal that we were alſo ſeen: by means of a ſmall teleſcope I obſerved the fire and ſmoke, and five minutes elapſed before the ſound reached us, not in a ſtraight direction, but re-echoed between the ſurrounding rocks. We had propoſed to kindle a fire, and to let off ſome hand-grenades, but the cold prevented us from ſtriking fire. Not being able to ſupport its extremity more than three quarters of an hour, although the ſun ſhone very bright, and we kept ourſelves in continual motion, we placed a black flag on the higheſt point.

"We were as fortunate in deſcending as in mounting. We came to the Unter-Titlis at half paſt eleven; to the Laubergrat at one, where we again took ſome refreſhment, and having let off our grenades, reached the abbey at five in the afternoon. We felt no permanent inconvenience from this expedition; our faces were only ſwelled, and our ſkins peeled, from the reflection of the ſun, and for ſome hours after my return to Engelberg, I loſt my ſight and my hearing, both which however I ſoon recovered. Undoubtedly the Titlis is the higheſt mountain in Switzerland, excepting Mont-Blanc, to which it is not much inferior."

It is to be regretted, that this expedition was only a mere effort of curioſity, and that the ingenious phyſician carried with him neither thermometer nor barometer. His aſſertion that the Titlis is higher than any mountain in Switzerland, will, for this reaſon, and without farther proofs, admit of much doubt; its elevation, though very conſiderable, muſt be greatly inferior to that of Mont-Blanc, as will appear by conſidering that the expedition from the plain of Engelberg to the top of Titlis was performed in eight hours; whereas Dr. Paccard and James Balma employed fifteen in attaining the ſummit of Mont-Blanc; and the place from which they took their departure is probably much higher above the level of the ſea than the valley of Engelberg.

Auguſt 25.

TRAVELLERS, in going from Engelberg to Altdorf, uſually return to Stantz or Buochs, embark on the lake of Lucern, and proceed the reſt of the way by water; but as I had already viſited thoſe places, I preferred following the route acroſs the mountains. The morning being obſcure and rainy, we were detained till nine o'clock, when the weather clearing up I ſet out, in company with Meſſrs. Balthazar and Meyer, of Lucern. Paſſing through the plain of Engelberg, we admired on our left a fine waterfall, which precipitates itſelf from Mount Engel, and in about a league arrived at a cottage belonging to the abbey, where we found two peaſants employed in making cheeſe, and regaled ourſelves with ſome excellent cream. From this point we mounted gently by the ſide of the Aa, leaving on the right the high Suren Alps, whoſe pointed tops occaſionally burſt forth amid the clouds and vapours; about a mile from the cottage we quitted the abbot's horſes, walked up a gradual aſcent, paſſed a ſuperb cataract of the Aa, and reached a chapel noted in theſe parts for a ſmall bell, which, according to tradition, was the gift of a French traveller. Near this chapel we obſerved a hut, which is in the canton of Uri, from whence the aſcent was ſteeper, but not difficult; we croſſed many drifts of ſnow, and were incommoded by a keen wind and frequent ſhowers of ſleet, hail, and rain. At length, in about four hours after our departure from the abbey, we reached a croſs planted on the higheſt point; from this elevation we ſhould

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have enjoyed a moſt ſuperb view, greatly admired by travellers, on one ſide towards Uri and the chain of the St. Gothard, and on the other towards Engelberg, and the lake of Lucern, had not the weather totally obſcured the proſpect. From this point the Titlis is much extolled for its beautiful and majeſtic appearance.

From hence we deſcended the Enkeberg into a moſt barren region, amid a harveſt of pointed rocks, and over numerous drifts of ſnow, and fallen fragments of ſtone, intermixed with ſmall patches of ruſſet herbage, which contributed to increaſe the drearineſs of the ſcene. Our deſcent continued above an hour and an half, along a bare ſlippery rock of ſlate, or in the bed of torrents, or over large maſſes of ice and ſnow, when we obſerved ſeveral huts ſcattered in a ſmall plain. From their firſt appearance we concluded that we ſhould preſently reach them, but the precipices were ſo ſteep, the paths ſo rugged, and the diſtance ſo much greater than we at firſt imagined, that it employed us above an hour and an half.

The little valley, in which theſe huts are ſituated, is called *Wald-nacht Alp*, contains a ſmall quantity of underwood, and feeds a hundred and thirty-three cows, beſide a few ſheep, goats, and hogs. The peaſants employed in tending the cattle and making cheeſe, uſually arrive on the 20th of June, and remain about a hundred days. The owner of the hut in which we dried our clothes, makes every day during that period two cheeſes of twenty-five pounds each, from the milk of eighteen cows.

Having taken ſome refreſhment, and recovered our fatigue, we continued along the valley through ſome groves of poplars and firs, and at its furtheſt extremity came to a ſingle cottage ſeated on an eminence, the firſt houſe on this ſide which is habitable in winter. A little further we had a proſpect of the town and environs of Altdorf; the fertile vale of Schackeren, which, though a very ſteep aſcent, yet from this elevation ſeemed a level plain; the lake of Uri, which looked like a ſmall rivulet; and the diſtant mountains reaching beyond the St. Gothard. The deſcent, through rich fields and paſtures, was extremely ſteep and tedious, as the graſs was rendered ſlippery by the rain, and we did not arrive at Altdorf till ſeven in the evening, wet and exceedingly fatigued, but much pleaſed with our expedition. This paſſage from Engelberg to Altdorf is eſtimated at ſeven leagues. A *chaſſeur* may perform it in four hours; a traveller accuſtomed to mountains, in ſix; and a perſon unuſed to ſuch fatigue, will require eight or ten hours.

LETTER XXVII.—*Valley of Schoellenen.—Devil's Bridge.—Valley of Urſeren.—Valley and Mountain of St. Gothard.—Sources of the Teſino and Reuſs.*

St. Gothard, Aug. 9.

SWITZERLAND is a moſt delightful country, and merits the particular obſervation of the traveller, as well for the diverſity of the governments, as for the wonderful beauties of nature; but the impoſitions of the innkeepers, and the difficulty of procuring horſes *, are inevitable taxes for the enjoyment of theſe its delights. Theſe little in-

* I would recommend to all travellers who traverſe the canton of Uri in order to viſit the Alps, either to hire horſes at Lucern, or to beſpeak them againſt their arrival at Altdorf. If we fortunately had not taken the latter precaution, we ſhould have found no leſs difficulty in procuring horſes in 1785 than in 1776; notwithſtanding all the good offices of our landlord at the Black Lion, who, knowing that I was the author of Letters on Switzerland, was extremely anxious to wipe away certain aſperſions which, in the beginning of this letter, ſeem to glance at his native town. The two Mr. Cliffords, whom we met at Engelberg, and who, to our great ſatisfaction, accompanied us in our tour as far as Geneva, were obliged to purſue their journey on foot, not being able to procure more than one horſe, which was appropriated to their baggage.

Drawn by T. Goodwin.

Engraved by J. Greig.

The Devils Bridge Switzerland.

London, Published by Longman, Hurst, Rees & Orme, Paternoster Row, Oct. 1st 1809

conveniencies, however, ſhould be borne with patience and good humour; nor will I trouble you with any ſplenetic complaints of thoſe unpleaſant circumſtances which muſt occur to all travellers.

Quitting Altdorf, we paſſed at firſt through a fertile plain of paſture, in which the inhabitants were employed in mowing the ſecond crop of hay, and in about nine miles began aſcending. The road winds continually along the ſteep ſides of the mountains, and the Reuſs ſometimes appeared ſeveral hundred yards below us; here ruſhing a conſiderable way through a foreſt of pines, there falling in caſcades, and loſing itſelf in the valley. We croſſed it ſeveral times, over bridges of a ſingle arch, and beheld it tumbling under our feet, in channels which it had forced through the ſolid rock; innumerable torrents roaring down the ſides of the mountains, which were ſometimes bare, ſometimes finely wooded, with here and there ſome fantaſtic trees clothing the ſides of the precipice, and half obſcuring the river. The darkneſs and ſolitude of the foreſts, the occaſional livelineſs and variety of the verdure, immenſe fragments of rock blended with enormous maſſes of ice; crags of an aſtoniſhing height piled upon one another, and ſhutting in the vale;—ſuch are the ſublime and magnificent ſcenes with which this romantic country abounds.

Near Waſen is the valley of Meyen; the torrent that daſhes through it, and falls into the Reuſs, forms a ſeries of grand cataracts, which the traveller may enjoy by venturing to the edge of the precipice, and ſupporting himſelf againſt an impending pine that overlooks the gulf.

We ſet out this morning early from Waſen, a ſmall village where we paſſed the night; and continued advancing for ſome way up a rugged aſcent, through the ſame wild and beautiful tract of country which I have juſt attempted to deſcribe. We could ſcarcely walk a hundred yards without croſſing ſeveral torrents, that rolled with violence from the tops of the mountains. This being one of the great paſſes into Italy, we met many pack-horſes laden with merchandize; and as the road in particular parts is very narrow, it required ſome dexterity in the horſes to paſs one another without joſtling. Theſe roads, impending over precipices, cannot fail of inſpiring terror to travellers, who are unaccuſtomed to them; more particularly as the mules and horſes do not keep in the middle of the track, but continue croſſing from the ſide of the mountain towards the edge of an abyſs, then turn aſlant abruptly; thus forming, if I may ſo expreſs myſelf, a conſtant zig-zag.

Thus far the country appeared to be tolerably well peopled; we paſſed through ſeveral villages ſituated towards the bottom and leſs narrow part of the valley; the ſides of the mountains were occaſionally ſtrewed with cottages, covered with foreſts, or enriched with paſtures. Still continuing to aſcend, the ſcenery beyond Waſen ſuddenly changing, became more wild and deſert; there were no traces of trees, except here and there a ſtubbed pine; the rocks were bare, craggy, and impending; not the leaſt ſign of any habitation, and ſcarcely a blade of graſs to be ſeen. We then came to a bridge thrown acroſs a deep chaſm over the Reuſs, which formed a conſiderable cataract down the ſhagged ſides of the mountain, and over immenſe fragments of rock which it has undermined in its courſe. This bridge is called *Teufels-bruck*, or the Devil's Bridge. As we ſtood upon the bridge contemplating the fall and liſtening to the roar of the cataract, we were covered with a ſpray, which the river threw up to a conſiderable height. Theſe are ſublime ſcenes of horror, of which thoſe who have not been ſpectators can form no perfect idea: they defy the repreſentations of painting or poetry *.

Not

* Many travellers have been diſappointed on the *firſt* view of the Devil's bridge. It ought therefore to be remarked, that the bridge itſelf, though of difficult execution, is a trifling object, and not ſo ſtupendous

Not far from this deſolate landſcape the road led us into the *Urner-loch*, a ſubterraneous paſſage cut through a rock of granite *, which opened at the oppoſite entrance into the ſerene and cultivated valley of Urſeren: the objects that preſented themſelves were a village backed by a high mountain, and a wood of pines; peaſants at work in the fields, cattle feeding in the meadows, and the river, which was lately all foam and agitation, now flowed ſilently and ſmoothly; while the ſun, which had been hidden from us in the deep abyſs, ſhone in its full ſplendor. In general, there is a regular gradation from extreme wildneſs to high cultivation; but here the tranſition was abrupt, and the change inſtantaneous: it was like the lifting up of a curtain, and had all the effect of enchantment.

In this valley are four villages, Urſeren, Hopital, Realp, and Zundorf; forming a ſmall republic under the protection of Uri. The territory of this little commonwealth is about nine miles in length and two in breadth, and contains thirteen hundred ſouls. The people elect, in their general aſſembly, their *Talamman* or chief, as alſo ſome other magiſtrates; and there is a permanent council of fifteen members, who aſſemble in each of the different diſtricts. The inhabitants enjoy great privileges, but are not abſolutely independent: for, in civil cauſes, an appeal lies from their courts of juſtice to Altdorf, and in criminal proceedings, two deputies from the government of Uri are preſent at the trial, and deliver to the judges of the valley the opinion of the Council of Altdorf.

Notwithſtanding the conſiderable elevation of this valley, and the coldneſs of the air even at this ſeaſon of the year, it produces excellent paſture. The only wood therein is the ſmall plantation of pines above the village of Urſeren, which is preſerved with uncommon care and reverence, and a ſmall quantity of underwood and ſtubbed willows, that feather the banks of the Reuſs. In the adjacent country there are ſeveral mines of cryſtal, of which a conſiderable quantity is exported. The language of the natives is a kind of provincial German, but almoſt every perſon ſpeaks Italian.

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as many others in Switzerland; and that it is the wild and majeſtic ſcenery that aſtoniſhes and exalts the beholder. This bridge was deſtroyed by the French in 1799, and the torrent was paſſed by Marſhal Suwarof and the Ruſſians, when he made his famous retreat.

Perhaps the reader will not be diſpleaſed to contemplate Suwarof's picture of this ſublime ſcenery, in his diſpatch to the Emperor of Ruſſia, dated Feldkirch, Oct. 3, O. S.

"Our army left the frontiers of Italy regretted by all the inhabitants, but with the glory of having liberated that country, and traverſed a chain of dreadful mountains. Here St. Gothard, the coloſſus of mountains, ſurrounded by clouds impregnated with thunder, preſents itſelf to our view; there the Vogelberg, ſtriving, as it were, to eclipſe the former in terrific grandeur! All dangers, all obſtacles are ſurmounted; and, amidſt the combat of elements, the enemy cannot withſtand the brave army which ſuddenly appears on this new theatre; every where they are driven back. Your Imperial Majeſty's troops penetrated the dark mountain cavern of Urſeren, and made themſelves maſters of the bridge which joins two mountains, and juſtly bears the name of Devil's bridge. Though the enemy deſtroyed it, the progreſs of the victorious troops was not impeded; boards were tied together with the officers ſcarfs, and along that bridge they threw themſelves from the higheſt precipices into tremendous abyſſes, fell in with the enemy, and defeated them wherever they could reach them. It now remained for our troops to climb Mount Winter, the ſummit of which is covered with everlaſting ſnow, and whoſe naked rocks ſurpaſs every other in ſteepneſs. Almoſt buried in mud, they were obliged to aſcend through cataracts rolling down with dreadful impetuoſity, hurling with irreſiſtible force huge fragments of rock, and maſſes of ſnow and clay, by which numbers of men and horſes were impelled down the gaping caverns, where ſome found their graves, and others eſcaped with the greateſt difficulty. It is beyond the powers of language to paint this awful ſpectacle of nature in all its horrors."

* This paſſage was hollowed in 1707, by Peter Moretini, a native of Val-Maggia, at the expence of the inhabitants in the valley of Urſeren. It is nine feet in breadth, ten in height, and two hundred and twenty in length.

The

The valley of Urſeren is a ſmall plain ſurrounded by high mountains, covered with paſture terminating in barren rocks, in many parts capped with ſnow. Near the middle of this beautiful plain we turned to the left, and entered the valley of St. Gothard, filled with the ruins of broken mountains; the Reuſs, a moſt rapid and vehement torrent, burſting through it; on each ſide immenſe ſhattered blocks of granite, of a beautiful greyiſh colour (and of which the ſummits of theſe Alps are compoſed,) confuſedly piled together.

The valley of St. Gothard, though not ſo wild as that of Schoellenen, is yet exceedingly dreary. It does not contain a ſingle ſhed, or produce a ſingle tree; and the ſides of the mountains are barely ſprinkled with ſhort herbage. The extremity is cloſed by the ſtill ruder and naked rocks of the Feudo, ſupporting in its hollow vaſt maſſes of ſnow, while the ſuperb glacier of the Locendro towers above the adjacent heights. It is about two leagues from Urſeren to this place; but the road, conſidering the ruggedneſs of the rocks and the ſteepneſs of the aſcent is not incommodious; it is from nine to twelve feet broad, and almoſt as well paved as the ſtreets of London.

We are now lodged at a houſe inhabited by two Italian friars from the convent of Capuchins at Milan, who receive all ſtrangers that paſs through theſe inhoſpitable regions. One of the friars is abſent, ſo that I am in poſſeſſion of his bed-chamber: it is a ſnug little room, where a man may ſleep very well without being an anchorite, and which, after the fatigues of our journey, I enjoy with a ſatisfaction much too ſenſible to envy the luxury of a palace. Our hoſt has juſt ſupplied us with a dinner, conſiſting of delicious trout, with which the neighbouring lake of Locendro abounds, eggs and milk, together with excellent butter and cheeſe; both made in this dreary ſpot.

Upon our arrival we were rejoiced to find a good fire; the weather being ſo exceedingly cold, that I, who was only clad in a thin camlet coat, entered the houſe half frozen. It is ſingular to find, at the diſtance of only a day's journey, ſuch a difference in the climate: the air is abſolutely in a freezing ſtate; and I juſt now paſſed by a boy at work, who was blowing his fingers to warm them. If the cold is ſo piercing in the midſt of ſummer, how intolerable muſt it prove in December? The ſnow begins to fall the latter end of September; and the lakes about this ſpot are frozen during eight months in the year.

I am juſt returned from viſiting the ſources of the Teſino and the Reuſs, which riſe within a ſhort diſtance of each other. The Teſino has three principal ſources in the chain of the St. Gothard. The firſt is a ſpring near the foot of the Proſa, entirely covered with frozen ſnow, or, when that is melted, with fallen fragments of rock, through which it trickles in numerous currents, that unite and help to form a ſmall lake; from this piece of water it communicates with two other lakes, and iſſues in a more conſiderable torrent.

The lake of La Sella, in another part of the eaſtern chain, ſupplies the ſecond ſource; the third is furniſhed by the ſnows of Mount Feudo. Theſe three ſources uniting with another branch, that flows from the Furca through the valley of Bedreto, form one great torrent, which takes its courſe towards the ſouth, enters the lake of Locarno, and, traverſing part of the Milaneſe, falls into the Po.

The ſource of the Reuſs is the lake of Locendro, an oblong piece of water about three miles in circumference, ſtretching between the mountains of Petina and Locendro, and almoſt entirely ſupplied by the immenſe glaciers which crown the ſummit of the Locendro, The ſtream iſſuing from this lake ruſhes down the valley of St. Gothard, and, joining in the vale of Urſeren the two branches which come from the Furca on one

ſide, and from the Griſon mountains on the other, flows towards the north into the lake of Lucern, and from thence throws itſelf into the Aar.

Within a day's journey is the ſource of the Rhine in the Griſons, and about the diſtance of three leagues, that of the Rhone in the Furca, which mountain we ſhall paſs to-morrow. We are ſtill ſurrounded by high rugged rocks, and inacceſſible glaciers, ſo that our view is much confined; though I walked above a league towards Italy, in hopes of enjoying an extenſive proſpect over that delightful country, yet I could obſerve nothing but rocks, precipices, and torrents.

I am at this inſtant near * ſeven thouſand feet perpendicular above the level of the ſea: no inconſiderable height, moſt certainly. Nevertheleſs, if I give credit to thoſe who aſſert, that this mountain is the loftieſt point in Europe, I ſhould raiſe myſelf in idea above twice as high; but I have reaſon to think, that this opinion is founded upon falſe calculations. Mikeli, who meaſured the principal mountains of Switzerland, but who is very inaccurate in his calculations, conſiders the St. Gothard as the higheſt; and he eſtimates its elevation above the ſea at 17,600 feet. But, ſo far from being of that height, it is by no means the higheſt ground of Switzerland; and there is probably not one mountain either in Europe, Aſia, or Africa of that altitude. According to General Pfiffer, the ſummit of the St. Gothard riſes above the ſea 9,075 feet; an elevation conſiderably leſs than that of Ætna and Teneriff, and ſtill more inferior to ſeveral mountains in the great chain of Alps, to which we are bending our courſe.

Auguſt 1785.

On my entrance into the little plain in which the friar's houſe is ſituated, although the air was exceedingly keen, I did not experience that piercing cold which I felt in 1776; but the day was fine, and the ſun ſhone unclouded. When we arrived at the houſe the friar was ſaying maſs to an audience of about twenty perſons, many of whom come from the neighbouring Alps, where they are tending cattle, to divine ſervice on Sundays and feſtivals. At the concluſion of maſs, the friar, whoſe name is Francis, immediately recollected, and received me with great ſatisfaction. He is well known to all travellers that paſs this way, having already inhabited this dreary ſpot above twenty years. Since my laſt expedition, he has conſiderably enlarged his houſe, and rendered it extremely commodious. It contains at preſent, beſides ſeveral ſitting-rooms, kitchens, and an apartment for the family, nine ſmall but neat bed-chambers appropriated to travellers. The expence of this addition has already amounted to £300, part of which he collected in various diſtricts of Switzerland; an equal ſum is required to diſcharge the preſent debts, and to make the further neceſſary improvements, which he hopes to procure by another collection.

Friar Francis obligingly accompanied me about the environs, and favoured me with the following particulars, in addition to my former account: The chain of mountains which immediately ſurrounds this place takes the general appellation of St. Gothard, and its particular parts are called by different names; of which the principal are the Salla, Proſa, and Surecha, to the eaſt; the Feudo, the Petina, and the Locendro, to the weſt; to the north, the Urſino; and to the ſouth, the ridge of naked and piked rocks of the Val-Maggia. Of theſe the Feudo is the moſt elevated: its higheſt point riſes more than 2000 feet above the plain in which ſtands the friar's houſe, and requires

* According to M. de Sauſſure, the ſpot upon which the houſe of the Capuchin friars is built, is 1,061 French toiſes above the ſea.

three

three hours to reach it. There are ſix paſtures on the neighbouring heights, on which are fed two hundred cows, a hundred and fifty goats, and thirty horſes.

On examining at mid-day Reaumur's thermometer, placed in the ſhade in a northern aſpect, I was much ſurpriſed to find that the mercury ſtood at $6\frac{6}{10}$ above freezing point, or 46 of Fahrenheit, although the northern wind was exceedingly keen, and, if I had judged from my own feelings, I ſhould have concluded that the air was in a freezing ſtate.

About four years ago the Elector of Bavaria ſent to the friar ſeveral barometers, thermometers, and other meteorological inſtruments, which enabled him to note the variations of the atmoſphere, and to form a ſeries of obſervations. In the moſt extreme cold he ever experienced in theſe parts, the mercury in Reamur's thermometer fell to 19 degrees below freezing point, or—10 of Fahrenheit.

In 1784. Greateſt heat on the 13th of September, it ſtood at 13, or $6\frac{1}{2}$ of Fahrenheit. Greateſt cold at—17, or $8\frac{1}{2}$ of Fahrenheit.

M. de Luc's barometer never roſe higher than -	22°	3′	1″
or fell lower than - - -	20	9	9

It appeared from obſervations made in 1784, that the average ſtate of the thermometer and barometer was as follows:

Thermometer.	Barometer.		
Nine in the morning, } $2\frac{1}{10}$ of Reamur, or 28 of Fahrenheit -	21°	9′	2″
Midday — 0 — or 32 — -	21	9	3.
Nine in the afternoon, } 1—3 lines, — or $29\frac{1}{2}$ — -	21	9	4

In the ſame year it ſnowed during ſome part of 118 days; rained 78; cloudy 293; tempeſt, with hail, 12; thunder and lightning 22; rainbow 4. Halos round the ſun 2, and round the moon 2. Serene days 87.

LETTER XXVIII.—*Paſſage and Glacier of the Furca.—Source of the Rhone.*

Munſter in the Vallais, Aug. 11, 1776.

I ARRIVED here late yeſterday evening, and ſo fatigued that I was incapable of writing, but I am this morning refreſhed with a comfortable ſleep, and in ſpirits to continue my journal. I took leave of our hoſt at St. Gothard, and walked alone, for about two leagues, down the valley. I frequently quit my party, and either go on before, or loiter behind, that I may enjoy uninterrupted, and with a ſort of melancholy pleaſure, theſe ſublime exhibitions of Nature in her moſt awful and tremendous forms. I entered the valley of Urſeren at the hoſpital, and was again ſtruck with the ſtrong contraſt between that cultivated vale and the deſolate country I had juſt quitted. At the ſame time I enjoyed a moſt ſublime view of the high chain that encloſes the vale of Urſeren, and particularly noticed the towering rocks which ſtand in the country of the Griſons, one of them ſupporting on its rugged top a glacier, from which the Rhine takes its riſe. We paſſed through the ſmall village of Zundorf, and ſtopped at Realp, to procure ſome refreſhment, and bait our horſes. From thence we ſoon reached the extremity of the valley of Urſeren; where we began aſcending a path ſo narrow, ſteep, and rugged, that I ſuſpected we had miſſed our way, as it ſeemed almoſt impracticable for horſes; upon

their arrival however I mounted, being fatigued with my walk from St. Gothard to Realp. It was a ſingle path, up a ſteep mountain, where a horſe, with ſome dexterity, could juſt put one leg before the other: this path ſometimes lay upon the edge of a precipice, very craggy and ſtony; where, if my ſteed had happened to ſtumble, we muſt both inevitably have periſhed. But as I knew he was no more inclined than myſelf to roll down the precipice, I flung the bridle upon his mane, and entruſted myſelf to his direction. Nor had I any reaſon to repent of my confidence; for, in the bad and dangerous parts, he never once tripped; where it was ſmoother and ſafer, indeed, he knew he had a licence to be more careleſs.

We came at length to a torrent, through which we drove our horſes with ſome difficulty, and croſſed it by means of a plank; a little farther we arrived at another, deeper and more violent, over which there was no bridge, nor the leaſt appearance of any track on the other ſide; it was a conſiderable diſtance from any habitation, and our guide unacquainted with the road. After ſome obſervation we diſcovered that the mountain had lately fallen down, and overwhelmed the path, leaving only a very faint narrow track on the ſide of the precipice, along which my companions ſcrambled upon their hands and knees. While I was croſſing the torrent on horſeback, I heard a ſcream, and, turning round, ſaw one of our ſervants ſeized with a panic on the very edge of the precipice, and vehemently exclaiming, that he could neither get forwards or backwards. Nevertheleſs, with ſome aſſiſtance, he paſſed over, declaring, at the ſame time, that he would take care never to put himſelf again in a ſimilar ſituation. We now regained a kind of path, but ſo extremely ſteep that we prudently diſmounted, and ſuffered the horſes to make their own way. With much difficulty, and, after croſſing ſeveral large drifts of ice and ſnow, the torrents at the ſame time rumbling under our feet, we reached, by a very ſteep aſcent, the ſummit of the Furca. A number of rugged and forked rocks piled one above another have occaſioned, it is ſaid, this chain to be called the *Furca*. The country immediately around was as dreary and deſolate as the valley of Schoellenen; all vegetation ſeemed to have ceaſed; lower down, the mountains were covered with herbage and ſweet-ſcented flowers; near us, but higher on the left, between the Blaueberg and the Lungnetz, lay a large body of ice, from which iſſued a torrent *, probably one of the firſt ſources of the Rhone. In a word, the majeſtic objects that preſented themſelves to our view, formed a moſt aſtoniſhing and ſublime ſcene.

From hence we deſcended broken rocks and craggy precipices for a conſiderable way. By this time I was ſo much fatigued, that I was glad to ſit down and take ſome refreſhment, conſiſting of bread, cheeſe, and hard eggs, the only proviſion we could procure at Realp. We were ſeated by a ſtream of clear water ripling down the ſide of a mountain ſo exceedingly ſteep, that our humble repaſt would [illegible]rolled away if it had not been ſupported. In full view before us was the glacier of [illegible] an immenſe valley of ice, extending at leaſt three miles in length and near a [illegible]adth, between the Gletcherberg and the Satzberg, rocks more ſhagged, if poſſ[illegible]n any of the neighbouring mountains: it ſtretches from their feet, fills up the [illegible]ervening chaſm, and reaches almoſt to their ſummits. The rays of the ſun cauſed it [illegible]o gliſten like chryſtal, while the blue tints reflected on the ſurface appeared inexpreſſibly beautiful. The ice ſeemed to break in ſeveral parts, as we heard ſome loud and deep cracks; the torrent

* I was informed by a friar of Realp, who travels much in theſe parts, that this torrent, which is turbid in ſummer, is in winter as tranſparent as the cleareſt ſpring; and that when the accumulation of the ſnow prevents it from flowing under the glacier of the Furca, it then forms a lake, runs over the ice, and ruſhes to the Vallais with the waters it receives in its courſe.

of

Glacier & Source of the Rhone.

of the Rhone at the ſame time roaring beneath. That river is chiefly formed by this glacier: the ſmall torrent, which burſts from the body of ice between the Blaueberg and the Lungnetz, being joined by ſeveral ſtreams, loſes itſelf under the vaſt arch of ice that forms the bottom of the glacier, iſſues conſiderably augmented, and is the great and principal ſource from whence the Rhone takes its riſe. The range of mountains on which we were ſitting was overſpread with underwood and herbage, and ſome cattle were feeding along the heights: a fine contraſt to the ſterility of the oppoſite chain, which appeared for ſome extent nothing but bare rock, except where it was covered with ice and frozen ſnow.

Having finiſhed our banquet, and repoſed ourſelves for a ſhort time, in contemplation of the ſcene, we deſcended to the bottom of the glacier, where we admired the Rhone breaking forth with violence from the bed of ice, near the huge fragments of a fallen rock. We now followed the courſe of that river, and proceeded down a mountain ſo ſteep, that ſeveral parts of the road winding along its ſides were frequently parallel to each other. The ſcenery of the valley, which we now entered, was of the ſame nature as that of Schoellenen; the Rhone foaming with amazing rapidity, and falling in a continual cataract at the foot of irregular and immeaſurable Alps. We travelled through this valley above two leagues, perpetually aſcending or deſcending the rugged ſides of rocks; one moment cloſe to the river, and the next ſome hundred yards above it. At firſt, the rocks were either bare, or ſtudded with a few ſtraggling pines, but as we advanced, became more and more clothed with wood and verdure; ſtill, however, we obſerved no traces of any habitation, and we had now meaſured at leaſt fifteen miles from the valley of Urſeren, without ſeeing a ſingle dwelling. I was here ſo ſtruck with the beauty of the foreſts and the luxuriance of the paſture, that I could not avoid expreſſing my aſtoniſhment, on obſerving no appearance of any habitation in theſe delightful ſpots. I had ſcarcely made the remark, when four or five cottages, ſituated on the other ſide of the Rhone upon a beautiful declivity, announced our approach to the Vallais. Not long afterwards we unexpectedly came to an opening, which commanded an extenſive view of that fertile vale, containing ſeveral ſcattered villages. In this very ſpot, a peaſant of taſte has built his cottage. Here we quitted the rugged track, and deſcended into the Vallais.

We had propoſed paſſing the night at Oberwald, after the fatigues of the day, but, upon enquiry, found no refreſhment. The maſter of a little hovel, which was called an inn, pointed to a large cheeſe, and told us that was all his proviſion: it was his bread, his fiſh, and his meat. As there was no better accommodation at Obergeſtlen, we continued our route to Munſter, where we did not arrive till late; here we found an excellent inn for this country, which afforded good bread, and even ſome meat; but, what was far more comfortable to me, a quiet room and a clean bed.

I am, &c.

LETTER XXIX.—*Mount Grimſel.—Source of the Aar.—Of the Chamois.*

Spital upon the Grimſel, Auguſt 11.

THE Vallaiſans are remarkably attached to their liberty. On quitting Munſter this morning we joined company with a peaſant, with whom we had a long converſation. He demanded our opinion of the country; and, pointing to the mountains, exclaimed, "Behold our walls and bulwarks; Conſtantinople is not ſo ſtrongly fortified." This upper part of the Vallais, I ſhould imagine, is not much frequented by travellers, if we may judge from the curioſity of the people, who all came out to gaze upon us; and, on

diſcovering that we were Engliſhmen, they obſerved us with greater attention. But what ſurprized us was, that the peaſant above-mentioned inquired concerning the ſtate of our war with the Americans.

After returning about a league through the ſame fertile and well-cultivated country which we traverſed yeſterday, we left the plain, and aſcended the Grimſel; one of thoſe Alps which ſeparate the Vallais from the canton of Bern. We employed four hours in climbing a ſteep and craggy road to the ſummit, and ſhould have conſidered the attempt as ſcarcely practicable, had we not been encouraged by the experience of yeſterday. We croſſed the ſeveral ſhades of vegetation: in the valley, and the lower parts of the mountain, corn and rich meadows; then foreſts of larch and pine; next, ſhort graſs, together with ſeveral ſpecies of herbs, that afford exquiſite paſture to the cattle; to theſe ſucceeded the various tribes of moſſes and lichens; then bare rock and ſnow. It would be curious to conſtruct, or at leaſt to imagine, a ſcale of vegetation, according to the idea of a French writer; who aſſerts, that exceſſive cold and exceſſive heat are equally pernicious. The tops of theſe mountains are barren, and produce no plants; and at certain heights nothing but moſſes and lichens will vegetate: the ſame occurs in climates where the heat is intolerable; as no other vegetable productions are obſerved in the burning ſands of Africa. The lichens and moſſes then, which ſupport the cold better than other plants, would form the firſt degree of a ſcale adjuſted to determine how far vegetation accords with the temperature of the atmoſphere. The ſame families of plants, as they bear alſo the heat much better than any other, would occupy the laſt degree in the ſcale. Thus, according to this fanciful ſcale, the two extremes touch each other ſurpriſingly.

From the top of the Grimſel we deſcended about two miles, and arrived at a ſmall plain or hollow in the midſt of the mountains; containing one ſolitary hovel, from which I am now writing to you. Notwithſtanding its wretched appearance, we found in this deſert ſpot all the accommodations we could wiſh for, except beds, and theſe are the leſs neceſſary, after our ſound ſleep laſt night. Not to mention excellent cheeſe, butter, and milk (our ordinary fare), we obtained ſome good wine, a ſmall portion of kid, and a boiled *marmot* *, which we have juſt devoured; although at another time we ſhould have revolted at the very idea. The landlord is ſtationed in this forlorn region by the canton of Bern, and reſides in it about nine months; he uſually arrives here on the firſt of March, and retires in the beginning of December. When he quits the place, he leaves a certain quantity of cheeſe, hard bread, ſalted proviſion, and fuel, in caſe any unfortunate wanderer ſhould happen to come this way in winter; and we obſerved long poles fixed on both ſides of the track at ſmall diſtances from each other, in order to point out the path to travellers, who may chance to paſs this mountain after the ſnow has begun to fall. The road is ſeldom open for horſes before the firſt of June. Near the houſe, upon the top of a ſmall rock, our hoſt has contrived a kind of little garden, by bringing ſome earth from the neighbouring paſtures: this ſmall piece of ground ſupplies him tolerably well with turnips and cabbages; although, on account of the height of the circumjacent mountains, it does not long enjoy the warmth of the ſun.

Numerous herds of goats are kept, during the ſummer months, upon theſe mountains: they are let out every morning to feed, and return every evening before ſun-ſet, to be milked and houſed. It was a pleaſing ſight to obſerve them marching homeward

* See an account of the marmot, in Letter lxx.

in

in the ſame herd, and following each other down the broken precipices, and along the rugged ſides of the rocks.

This hovel, beſides the ſtorehouſes for cheeſe, contains only a ſmall kitchen, a bed-chamber appropriated to the family, and a room, in which we are now ſitting. We occupy nearly one ſide: the other is taken up by our ſervants, the landlord and his wife and half a dozen honeſt labourers: the latter are partaking of their homely ſupper, with all the reliſh of well-earned hunger, and are enjoying a ſhort reſpite from their toil, with that noiſy mirth which characteriſes this claſs of people.

The ſources of the Aar are in theſe mountains. Near our hovel are three lakes that ſupply that river, which rolls down in an impetuous torrent from the neighbouring glaciers. While dinner was preparing, we walked by the ſide of the Aar, ſearching for cryſtals, which are very common in theſe parts: we found pieces of divers colours, white, black, yellow, and green. Theſe mountains certainly abound alſo in rich veins of gold, and other metals; a conſiderable quantity of gold-duſt being found in the bed of the Aar *, and in the various torrents. I can conceive nothing more fatal to the intereſts of Switzerland nor more repugnant to the liberties of the people, than to have theſe mines of gold or ſilver traced and opened. A ſudden overflow of riches would effectually change and corrupt their manners: it is an inconteſtable truth, that the real power of a country, not ambitious of conqueſt, is derived leſs from the wealth than from the induſtry of its ſubjects; the happineſs of a people, as well as of an individual, conſiſting in contentment.

What a chaos of mountains are here heaped upon one another! a dreary, deſolate but ſublime appearance: it looks like the ruins and wreck of a world.

On the Grimſel, Aug. 29, 1786.

You will recollect that, in 1776 †, I deſcribed the paſſage of the Furca as extremely difficult and attended with ſome danger. But that was my firſt eſſay over the leſs frequented alps. How different are our ſenſations at different intervals! To-day, on meaſuring the ſame ground, though I did not find the road as *ſmooth as a bowling-green*, I yet never once diſmounted, but rode with my Letters on Switzerland in my hand occaſionally making notes and obſervations: it muſt, however, be confeſſed, that in many parts, where a faint path along the crags and impending precipices was ſcarcely obvious, my ſituation was not very favourable for accurate compoſition.

From the top of the Furca, inſtead of immediately deſcending and purſuing the ſame road which I followed in 1776, we ſent our horſes forwards, and aſcended the Galleberg to the upper part of the glacier of the Furca: from thence we looked down upon the Vallais and the Rhone flowing through it, as upon a ſmall field watered by a rill; above and around, and as far as the eye could reach, we obſerved numberleſs pointed alps, and particularly that ſtupendous chain called the *Aar-Gletchers*, which comprizes, among many others, the Finſter-aar-horn, the Wetter-horn, the Jung-frau-horn, and the Schreck-horn.

The upper part of this glacier of the Furca is far more beautiful than the lower extremity; the ſnow is of a more virgin white; the pyramids of ice more bold, and the blue tints more lively and animated. Having enjoyed, in different directions, this icy ſcene, we deſcended near the edge of the glacier, and refreſhed ourſelves with ſome water from two tranſparent ſprings called *Aughſtweitcht-brunnen*, that burſt from the

* It has been ſuggeſted to me, that no gold-duſt is found in the Aar, until it has received the Reichenbach.

† See the preceding Letter.

ſides of the rock, at a ſmall diſtance from each other. We then went down a very ſteep deſcent, till we joined the track which I purſued in 1776. I recollected with a pleaſing ſatisfaction, the torrent near which we took on that occaſion our humble repaſt, and came to the Rhone about half a mile below the ſpot where it burſts in two ſtreams, from the bottom of the glacier. In order to have a nearer view, we croſſed the two ſtreams, which, though ſcarcely three feet in depth, ruſhed with ſuch violence, as almoſt to overturn the guide who conveyed me on his ſhoulders. Having admired the arch of ice, and paid our obeiſance to the majeſtic habitation of the River-God, we walked at the foot of the Statzberg, and noticed ſeveral lively ſprings iſſuing from the ground, which the inhabitants call *cold-waters*, and a little further three warm ſources *. Theſe ſources, uniting with ſeveral cold ſprings, fall within a few paces of their riſe, into the great torrent that flows from the glacier, and are uſually conſidered as the *true* ſources of the Rhone. That honour is appropriated to theſe little rills, becauſe, being of an equal temperature in all ſeaſons of the year, they do not owe their origin, like the *cold waters*, to the melted ſnow and ice, and are as abundant in winter as in ſummer. It appears, however, extremely inconſiſtent to dignify theſe little ſtreams with the excluſive title of the ſources of the Rhone; for that river undoubtedly owes its origin and greatneſs to the perpetual and inexhauſtible ſupplies from the ſurrounding glaciers.

We had now employed above nine hours in this expedition, and ſhould have continued much longer amid theſe majeſtic ſcenes, had not the declining ſun reminded us of approaching night. Being ſtill at a conſiderable diſtance from any habitation, we continued our route, and began aſcending the Grimſel, near the warm ſources. The track, though extremely ſteep, and almoſt perpendicular, was not dangerous, becauſe the rocks were thickly covered with ſmall ſhrubs, herbage, and moſſes.

After an hour and a quarter's tedious aſſent, we attained the ſummit of the Grimſel, and deſcending a rugged ridge of granite rocks, looked down upon a lake, from which

* I am indebted to Sauſſure for correcting a trifling error in a former edition of this work, in which I obſerved that the mercury in Reaumur's thermometer ſtood at 10 above freezing point, or 55 of Fahrenheit: but that ingenious naturaliſt, on plunging the thermometer into one of theſe ſources found the mercury ſtand at 14½ or 64.7 of Fahrenheit.

The experiments which Sauſſure made in analyſing the waters, ſhall be inſerted in his own words:

"La hauteur de cette ſource eſt, d'après mes obſervations du barometre, de 900 toiſes au-deſſus de la Méditerrannée. Or, il eſt ſi extraordinarie de trouver une ſource chaude à une tell élévation, et de la trouver au milieu des glaces, qu'il étoit intéreſſant de rechercher ſa nature, et de voir ſi cette recherche ne donneroit point d'indication ſur la cauſe de ſa chaleur.

"Dans ce deſſein, j'y portai, en 1783, quelques réactifs, avec de petits verres, que je lavai dans l'eau même de la ſource, et j'en fis l'épreuve ſur les lieux. La ſolution de ſoude ne la troubla en aucune maniere, non plus que l'acide du ſucre phénomene bien rare, et qui prouve que ces eaux ne contiennent aucun ſel à baſe terreuſe. Mais la ſolution de terre peſante dans l'acide marin, ou le muriate de baryte, la trouble un peu; ce qui indique la préſence de l'acide vitriolique; et comme d'un autre côté, cette eau ne change nullement les couleurs végétales, et qu'ainſi l'acide ne paroiſſoit point être libre, il eſt vraiſemblable qu'il y eſt combiné avec un alkali, et qu'ainſi c'eſt du ſel de glauber ou de ſulfate de ſoude que ces eaux contiennent. Enfin la diſſolution d'argent dans l'acide nitreux, la trouble ſur le champ, et aprés une demi heure de repos, la liqueur ſe ſépare en deux parties; celle de deſſus, qui forme les ⅔ du verre, eſt griſe et opaque, tandis que celle du fond paroit d'un rouge tranſparent. Il ſuit de là que ces eaux contiennent du ſoufre, mais plutôt ſous la forme de vapeur, que diſſous par une terre, puiſque l'acide nitreux libre n'y occaſionne ni précipité, ni changement de couleur.

"En la ſavourant avec attention, j'y reconnus un gout légérement ſulfureux, et mon domeſtique, qui n'étoit point prévenu, le reconnut également. Il eſt donc vraiſemblable, que cette eau, vraiment thermale, doit, comme les autres, ſa chaleur á quelqu'amas de pyrites qui ſe réchauffent en ſe décompoſant lentement dans le ſein des montagnes. Les tremblements de terre, ſi fréquents dans le canton d'Uri, ſur les frontières duquel ces ſources ſont ſituées, rendent plus probable encore l'exiſtence de ce foyer."

Sauſſure, Voyages dans les Alpes, tom. iii. p. 483, 484.

iſſues a ſtream that falls into the Rhone. A little further we paſſed ſeveral ſmall rills and dark lakes which ſupply the Aar; in leſs than an hour entered the road which leads to the Vallais, and reached the place of our deſtination, the ſame hovel on the Grimſel, where I paſſed the night on my former expedition. We arrived there about eight in the evening, after a journey which employed us more than twelve hours. I was much ſtruck with the view of the lake near the Inn: it is of a dark appearance, and its name is as melancholy as its aſpect: it is called the "*Lake of the Dead*," becauſe the dead bodies of thoſe who periſh in traverſing theſe unhoſpitable regions, are uſually thrown into it *.

No ſituation can exceed the ſolitary horror of the ſcenery on the top of the Grimſel. Its appearance reſembled the inſide of a mine, and ſeemed as if the bowels of the earth had been violently rent aſunder; reminding me of that ſublime deſcription in the Æneis, when the inſide of Cacus's cave is inſtantaneouſly laid open by the arm of Hercules.

At ſpecus, et Caci detecta apparuit ingens
Regia, et umbroſæ penitus patuere cavernæ,
Non ſecus ac ſi quâ penitus vi terra dehiſcens
Infernas reſeret ſedes, et regna reclulat
Pallida, Diis inviſa; ſuperq; immane barathrum
Cernuatur, trepidentque immiſſo lumine manes †.

On entering the hovel I immediately recognized the ſame landlord, who was ſtationed here in 1776, to whom, at that time, I never expected to owe a ſecond reception in ſo forlorn a ſpot. While ſupper was preparing, a peaſant and our guide, forgetful of his great fatigue, ſuddenly ſtarted up at the ſound of their favourite air, the *Renz des vaches*, played upon a rebec by a ſhepherd, and danced ſeveral *allemandes*, perfectly in time, and not without grace; a picturesque group of ſpectators looking on and applauding.

Auguſt 30.

This morning we made a ſhort excurſion to the ſource of the Aar, which takes its riſe in neighbouring glaciers. In leſs than half an hour we entered a ſmall plain, ſkirted by high mountains, and entirely cloſed by a rugged chain of alps, over which tower the Finſter-Aar and Lauter-Aar-horns, and at whoſe feet ſtretches a glacier ſo entirely covered with earth and ſtones, as to bear, at a ſmall diſtance, the appearance of a ſand-hill. From this glacier iſſues a "*torrent roaring loud*" of troubled waters, which is the ſource of the Lower Aar, and joins, in a few hundred paces, another ſtream called the Upper Aar, that falls from the Zinkeberg; the union of theſe torrents forms the Aar, which ruſhes with great impetuoſity over enormous fragments of rock. At preſent it runs in a narrow channel; but at the firſt melting of the ſnow in ſpring, overflows the whole ſpace between the mountains, and becomes a temporary lake.

* Sauſſure, vol. iv. p. 462.

† *Dryden's Virgil*, Book viii.

The court of Cacus ſtands reveal'd to ſight;
The cavern glares with new-admitted light,
So pent, the vapours with a rumbling ſound
Heave from below, and rend the hollow ground.
A ſounding flaw ſucceeds; and from on high
The gods with hate behold the nether-ſky;
The ghoſts repine at violated night,
And curſe the invading ſun, and ſicken at the ſight.

Our guide is a *chaſſeur*, who frequently ranges over this vaſt chain of Alps in purſuit of the chamois, an animal remarkable for its activity in ſcouring the craggy rocks, and leaping over the precipices. He informed me that this glacier is the extremity of a valley of ice about twelve miles in length, and from one to four in breadth: it then divides into two branches; one extends towards the Schreckhorn, and the other towards the Vallais. He expatiated with great enthuſiaſm on the profeſſion of a chaſſeur, though extremely laborious, and at times dangerous. He uſually kills from fifteen to ſixteen chamois in a year: with the fleſh, which is very delicate, he helps to ſupport his family, and diſpoſes of each ſkin for a guinea. He uſes a rifle-barrelled gun, and generally ſhoots them at the diſtance of three or four hundred yards.

The chamois are very timorous, and conſequently watchful animals. They uſually go out in herds of twenty or thirty; while they are feeding, one of them poſted on an adjacent height ſtands *centinel*, and is relieved at ſhort intervals by another. The *centinel* looks around with great ſolicitude, and on the leaſt ſuſpicion of danger alarms the herd by a ſhrill cry; inſtantly the whole troop decamp, one following the other.

The chamois feed on various kinds of herbage, and particularly on the *Lichen Rangiferinus*, or rein-deer lichen, which is found in ſuch great quantities, as in many parts to cover the ſummits and ſides of the mountains. In order to procure their favourite food in winter, they, like the rein-deer, clear away the ſnow with their fore-feet, frequently thawing it with their breath, for the purpoſe of looſening it more eaſily. But when, either from the depth or hardneſs of the ſnow, they cannot penetrate to the lichens, they browſe on the ſaplings of pine and fir. In ſummer their bodies are of a yelloviſh brown, and whitiſh under the throat; the hair is ſhort and ſmooth; in winter their coat lengthens and grows dark, ſo as to reſemble that of a bear. Sometimes, but very rarely, they have been found ſpeckled, or of variegated colours, and lately a chamois entirely white was ſhot upon the Engelberg. It was in all other reſpects ſimilar to a common chamois, and it is uncertain whether it owed its colour to age or accident.

Linnæus has claſſed the chamois in the goat genus, under the name of *rupicapra*, or mountain-goat; his acquaintance with the antelopes having been too ſlender to enable him to form a genus of antelopes, which Pallas firſt conſtructed, and where he has judiciouſly placed this animal. The example of Pallas has been followed by Pennant and ſucceeding zoologiſts. I am, &c.

LETTER XXX.—*Valley of the Aar.—Land of Haſli.—Meyringen.*

Auguſt 1776.

I FOUND the cold upon the Grimſel more piercing than upon the St. Gothard, and laſt night it even deprived me of ſleep. But then circumſtances were very different in the two lodgings; for on the St. Gothard I had a comfortable bed, whereas laſt night I lay in the hay-loft, without any covering: I declare, my blood has ſcarcely recovered its circulation. Take notice, this is the twelfth of Auguſt.

Having quitted our wretched abode on the Grimſel, we paſſed along the valley of the Aar, through a chain of wild, rugged, and uninhabitable Alps.

The road along this valley, though much narrower than that from Altdorf to the St. Gothard, is formed in the ſame manner along the ſteep acclivities and declivities, ſometimes laid on arches, and ſometimes carried over bridges thrown acroſs tremendous precipices. It is paved with flat pieces of granite, ſo ſmooth and ſlippery, that the horſes

would have perpetually ſtumbled, had they not been rough-ſhod. In ſome places this road ran along the bare and rugged ridges; in others, down ſteps, either cut in the rock, or formed by large ſtones, ſo that for ſeveral paces it reſembled a ſtair-caſe. The whole ſurface of the valley was thickly ſtrewed with vaſt fragments of rock; while thoſe which ſtill hung on the ſides of the mountains ſeemed threatening to overwhelm us; the river, during the whole way, thundering along in a continual fall. This valley exhibits the ſame kind of ſcenes to which we have been long accuſtomed; except that the Aar ruſhes with more impetuous rage even than the Rhone or the Reuſs, and is frequently ſo ſwelled with torrents as to ravage all the adjacent country: we ſaw many traces of theſe terrible devaſtations. We croſſed it in ſeveral places, over ſtone bridges of a ſingle arch, one of which equalled, in the length of its ſpan and drearineſs of the landſcape, the Devil's Bridge in the valley of Schoellenen. About three leagues from Spital we had a glimpſe, through the trees, of the Aar falling from a conſiderable height. In order to gain a nearer view, we climbed along the ſides of a ſteep rock, well covered with moſs: I leaned againſt a tree that impended over the precipice, and ſaw the river ruſhing from the rock, and ſpreading into a kind of ſemicircular expanſion in its deſcent. It fell with fury into a deep and narrow gulf, and then loſt itſelf in the midſt of the foreſt. The body of water was very conſiderable, and its perpendicular fall at leaſt one hundred and fifty feet. The ſcenery was alſo ſolemnly majeſtic; the grey rocks on each ſide riſing perpendicularly, and totally bare, except their tops, which were fringed with pines.

This picturesque ſcene appeared to realize a favourite image of claſſic antiquity: as I viewed the Aar pouring its flood of waters from a crevice of the rock, I figured to myſelf the Nile or the Tyber burſting at once from the urn of a River God.

In our way to Meyringen, we traverſed large foreſts of beech and pines, the Aar roaring along the valley, and the road, which was uſually craggy and rugged, inceſſantly aſcending and deſcending. We now paſſed through ſeveral ſmall villages, which afforded a pleaſing ſight, after the deſolate country we had lately quitted, and entered a beautiful little valley of a moſt lively verdure, and delightfully planted. All was calmneſs and repoſe; neither rapid river nor roaring torrent to interrupt the unuſual ſtillneſs and tranquillity of the ſcene. This ſhort interval of ſilence rendered us more ſenſibly affected with the turbulence of the Aar, and the loud clamour of the cataracts.

From this ſilent and ſequeſtered ſpot, we deſcended to a larger valley on the banks of the Aar. Perhaps no other part of Switzerland would yield more delight and occupation to the landſcape-painter than this picturesque valley, from the agreeable and ever-changing colour of the rocks which bound it, their ſummits finely broken into irregular and fantaſtic forms, and from the variety and ſize of the fragments diſperſed near the banks of the river. Each fragment, each cottage, each ſhed, each ſhrub, is a picture; the effect being conſiderably heightened by the tranſparency of the air, and the grandeur of the back-ground.

I have now viſited the ſources of three great rivers in Switzerland, and traced their impetuous progreſs through a tract of country, in which nature has exhibited the grandeſt and moſt auguſt of her works. But it is impoſſible adequately to deſcribe theſe majeſtic and aſtoniſhing ſcenes! In deſcription they muſt all appear nearly the ſame; yet, in fact, every river, cataract, rock, mountain, precipice, are reſpectively diſtinguiſhed by an infinite diverſity of modifications, and by all the poſſible forms of beauty, magnificence, ſublimity, or horror. But theſe diſcriminating variations, though too viſibly marked to eſcape even the leaſt obſerving eye, elude repreſentation, and defy the ſtrongeſt powers of the pen and pencil. In a word, you muſt not judge of this romantic country

country from the faint ſketches I have attempted to delineate; they can no more convey an idea of theſe wonderful ſcenes, than if I were to aim at deſcribing the pictures of Claude and Salvator, by informing you that they are compoſed of paint and canvaſs.

Meyringen, a large and neat village, is the capital burgh of Haſliland, a diſtrict in the canton of Bern, which enjoys conſiderable privileges. The people are governed by their own magiſtrates, and only take oaths of fidelity to the Sovereign Council. All the authority, which the bailifs in the other parts of this canton enjoy, is poſſeſſed in a great meaſure by the Landamman, who reſides at Meyringen. He is always a native of Haſliland, and is appointed by the Sovereign Council of Bern, at the recommendation of the bailif of Interlaken. Moſt of the other magiſtrates are elected by the people, who aſſemble as occaſion requires, and are convoked by the Landamman.

The inhabitants are a fine race of people: the men in general remarkably ſtrong and well made; the women tall and handſome. The women have an elegant manner of wearing their hair, which is commonly of a beautiful brown: it is parted on the top of the forehead, from thence brought round and joined to the locks behind, which either hang down their back in long treſſes, are braided with ribband, or woven round the head in a ſimple plait.

Meyringen is ſituated near the Aar, in a romantic vale, ſurrounded by meadows of a moſt luxuriant verdure, and ſprinkled with cottages, which are occaſionally ſeparated by huge intervening ſtones and deep channels, the veſtiges of ſtorms and floods. Cloſe to the village, the torrent Alp bach falls from Mount Houſli, in two perpendicular caſcades, but with ſo much violence, and in ſo large a body of water, as to cauſe frequent inundations: indeed the burgh itſelf has been in danger of deſtruction by its repeated ravages; againſt which, however, it is now protected by a wall of conſiderable height and ſolidity. Near this torrent another fall of water, the Dorf-bach, glides gently down the bare rock; further on, the Millebach gliſtened as it deſcended through a hanging grove of pines, that feather the ſides of the mountain.

As I ſtood on a platform of rock, about fifty feet above the bottom of the Alpbach, I looked over the delightful vale of Haſli, obſerved Mount Sheidec riſing from the banks of the Aar, and ſinking in one part, as if on purpoſe to diſcover three tremendous peaks towering in regular gradation; the one a naked conical rock; the ſecond tapering and ſprinkled with ſnow; and the third, which is the higheſt point of the Wetterhorn, of a pyramidal form, mantled with gliſtening ice.

The following is the ordinary price of proviſions throughout the mountainous parts of Switzerland.

	s.	d.
Butcher's meat, *per* pound	0	2½
Bread — do.	0	1½
Butter — do.	0	2½
Cheeſe — do.	0	2½
Salt — do.	0	1½
Milk, *per* quart	0	1½
Worſt wine, *per* do.	0	1½
Pays de Vaud wine	0	6*

* The reader will recollect that this liſt was taken in 1776, ſince which time the price of proviſions is conſiderably augmented.

By

By this list you will perceive, that bread is much dearer in proportion than the other articles, and the reason is obvious; for these mountainous parts abound in pasture, but produce little corn. The peasants, inhabiting the mountainous districts of Switzerland, live chiefly upon milk and potatoes. I had to-day a long conversation with one of our guides; he lives upon the mountains of Uri; and, as the winter lasts near eight months, each family lays in sufficient provision for the whole time. His own family consists of seven persons, and is provided with the following stores: seven cheeses, each weighing twenty-five pounds; a hundred and eight pounds of hard bread; twenty-five baskets of potatoes, each weighing about forty pounds; seven goats, and three cows, one of which is killed. The cows and horses are fed with hay, and the goats with the boughs of fir, which, in a scarcity of fodder, are given also to the other cattle. During this dreary season, the family are employed in making linen and cloth: for this purpose a small part of the ground belonging to each cottage is generally sown with flax, which has lately been much cultivated, and with increasing success, in the mountainous districts.

The houses, like those of Appenzel and Glarus, are generally of wood; and it was a natural observation of one of our servants, in passing through a continued chain of rocks, that as there was no deficiency of stone, it seemed extraordinary to employ wood alone for the purposes of building. But it may be remarked, that these wooden houses are sooner constructed, and easily repaired; and being formed in a compact manner, with small rooms, and low ceilings, are sufficiently warm even for so cold a climate. The chief objection arises from the danger of fire; which, however, is in some measure obviated by the method of building their cottages detached from each other. But this observation does not hold with respect to some of their largest burghs, which are exposed to the ravages of this dreadful calamity. I am, &c.

LETTER XXXI.—*Fall of the Reichenbach.—Passage of the Sheidec.—Valley and Glaciers of Grindelwald.*

Grindelwald, August 13.

WE left Meyringen this morning, crossed the Aar, and ascended the Sheidec through a beautiful forest of beech, poplars, mountain-ash, and pines. About two miles from Meyringen we dismounted at a small village, and passed along some fields, in order to view the fall of the Reichenbach, which is deservedly celebrated for its variety and beauty: it has its source at the foot of the Wetterhorn, and rolls in numerous cataracts down the steep sides of Mount Sheidec, until it joins the Aar near Meyringen.

The fall may be divided into three principal parts.

The first, which alone is usually visited by travellers, precipitates itself from an overhanging rock, is reduced into spray and foam, and in that state falls in a perpendicular column, from an elevation of at least two hundred feet, into a natural bason, and is soon lost in the abyss beneath. The rock itself is concave, arched, totally bare, excepting its summit, which is feathered with shrubs, and being of black marble, forms a striking contrast with the pure whiteness of the descending foam. Part of the spray rebounds on the rock, and glides gently into the bason in many a silvery current.

The second cataract begins from the overflowing of the bason, and is most advantageously seen from a large tree hanging on the side of the precipice; the torrent forms a second perpendicular column, which is half obscured as it dashes through a chasm of projecting rocks. The best point of view for seeing the third cataract is in a meadow at the bottom of the second. From that situation the whole Reichenbach seems one immense

immenſe water-fall; the bottom of the firſt, and the top of the ſecond cataract, being concealed by the intervening hills. From thence it rolls nearly in a horizontal direction; is divided into two ſtreams by a rocky iſland beautifully ſprinkled with trees, and impetuouſly deſcends in two unequal bodies. It then daſhes over broken crags of black marble, through groves of beech, mountain-aſh, and pines, and rich grounds interſperſed with hamlets.

On viewing the various parts of this ſtupendous fall, I was as much intereſted and affected as Ariſtæus is repreſented by Virgil, when his mother Cyrene points out to him the ſources of the principal rivers burſting at once from the earth:

Jamque domum mirans genitricis et humida regna,
Speluncíſque lacus clauſos, lucoſque ſonantes,
Ibat, et ingenti motu ſtupefactus aquarum.
Omnia ſub magnâ labentia flumina terrâ
Spectabat diverſa locis, Phoſimque, Lycumque,
Et caput, unde altus primum ſe erumpit Enipeus,
Unde pater Tiberinus, et unde Aniena fluenta,
Saxoſumque ſonans Hypanis, Myſuſque Caicus,
Et gemina auratus taurino cornua vultu
Eridanus, quo non alius per pinguia culta
In mare purpureum violentior influit amnis *.

From hence aſcending by the ſide of the Reichenbach, we croſſed that torrent over a bridge, and having traverſed ſeveral plains, or rather undulating vallies, beautifully ſprinkled with aſh, poplar, and other large trees, continued our route at the foot of ſome enormous mountains, which are called by the general name of Wetterhorn †, or *Stormy Peak*. This enormous group, which forms the Wetterhorn, is peculiarly ſtriking, from the naked majeſty and grandeur of its rugged peaks, and from its inſulated ſituation, and becauſe, in paſſing from Meyringen to Grindelwald, it preſents itſelf the firſt of this ſtupendous chain ‡.

* With wond'ring eyes he views the ſecret ſtore
Of lakes, that pent in hollow caverns roar;
He hears the crackling ſound of coral woods,
And ſees the ſecret ſource of ſubterraneous floods;
And where, diſtinguiſhed in their ſev'ral cells,
The fount of Phaſis and of Lycus dwells;
Where ſwift Enipeus in his bed appears,
And Tiber his majeſtic forehead rears;
Where Anio flows, and Hypanis profound
Breaks thro' th' oppoſing rocks with raging ſound;
Where Po firſt iſſues from his dark abodes,
And, awful in his cradle, rules the floods.

Dryden's Virgil, Georg. book iv.

† The ſeveral peaks of this mountain have different appellations, and are not aſcertained without much difficulty, the peaſants uſually miſtaking and confounding them. One is called the Wetter-horn, another the Nager-horn, a third the Engel-horn, and the higheſt point takes the denomination of Jungfrau-horn, or Virgin-horn, for the ſame reaſon as the mountain of that name in the valley of Lauterbruennen, becauſe its ſummit is inacceſſible. Hence ſeveral travellers have miſtaken this peak for the real Jungfrau-horn. I have mentioned theſe circumſtances, in order to prevent the confuſion of names puzzling future travellers as they once puzzled me. The word *horn* in German, which bears the ſame ſignification as in the Engliſh tongue, is applied to the higheſt peaks, as in French *aiguille*, or needle.

‡ To thoſe who go from Grindelwald to Meyringen, the Wetter-horn is the laſt of this chain. Hence the traveller will not perhaps be ſo much affected with its majeſty and grandeur, as if he firſt obſerved it in aſcending from Meyringen. I mention this circumſtance, becauſe all deſcriptions are *comparative*.

Having

Having aſcended about three hours from the time of our quitting Meyringen, we refreſhed ourſelves and our horſes in a delightful vale ſtrewed with hamlets; a ſloping hill, adorned with variegated verdure and wood, on one ſide; on the other, the Roſenlavi and Schwartz-wald glaciers ſtretching between impending rocks; and before us the higheſt point of the Wetterhorn lifting its pyramidal top capped with eternal ſnow. As we were taking our repaſt, we were ſuddenly ſtartled by a noiſe, like the ſound of thunder, occaſioned by a large body of ſnow falling from the top of the mountain, which, in its precipitate deſcent, had the appearance of a torrent of water reduced almoſt into ſpray. Theſe *avalanches* (as they are called) are ſometimes attended with the moſt fatal conſequences; for when they conſiſt of enormous maſſes, they deſtroy every thing in their courſe, and not unfrequently overwhelm even a whole village. The beſt preſervative againſt their effects being the foreſts, with which the Alps abound, there is ſcarcely a village, if ſituated at the foot of a mountain, that is not ſheltered by trees, which the inhabitants preſerve with uncommon reverence. Thus, what conſtitutes one of the principal beauties in the country, affords alſo ſecurity to the people.

We continued our courſe at the foot of the Wetterhorn, which in this part is ſo extremely perpendicular and tapering as to appear like half of an immenſe pyramid. Here we conceived it impoſſible that any ſcenes could be more rude and majeſtic than thoſe before us; but on reaching the top of the Scheidec, we burſt upon a view ſo far exceeding them in wildneſs and horror, that we unanimouſly exclaimed, "There is the *Schreckhorn*, or *Peak of Terror*." The deſcent from hence to Grindelwald is gentle but tedious. That village, conſiſting of numerous cottages, diſperſed over the plain and upon the riſing hills, exhibits an agreeable and pictureſque ſcene, heightened at the ſame time by a view of the vallies of ice, which ſtretch along the ſteep ſides of the mountains in a regular curve, and are beautifully ſkirted with wood.

The two vallies of ice, which extend into the plain of Grindelwald, are called the Superior and Inferior Glaciers. The former lies between the Wetterhorn and the Mettenberg; the latter between the Mettenberg and the Eger-horn. The Mettenberg is the baſe of the Schreckhorn; and the Eger-horn, or *Pointed Peak*, borders on the valley of Grindelwald, and ſlopes gradually from barren rock and ſnow to fertility and cultivation *.

Auguſt the 14th.

DARE I confeſs to you that I am ſomewhat diſappointed, and that a nearer view of the glacier has not ſufficiently compenſated for the fatigue and trouble of the expedition? But I have promiſed to write from my own feelings, and not to ſend an account taken from exaggerated deſcriptions.

We ſallied forth this morning full of impatience, and arrived at the bottom of the Inferior Glacier, forming a majeſtic arch of ice, from which iſſued a loud torrent of ſnow-water. This glacier is compoſed of numerous pyramids, which are more elevated towards the plain; being from about forty to fifty feet high, and gradually ſhortening, until they terminate in a broad ſurface broken into deep and wide chaſms. We mounted a very difficult path at the edge of the frozen region, occaſionally paſſing over the ſteep and craggy parts of the rock almoſt perpendicular, along the very ſides of the precipice, the danger of which makes me ſhudder even now. This glacier is ſeveral miles in length, and is ſuppoſed by many travellers to join the glacier of the Aar, which I viſited

* For a further account of this chain of Alps, which are contiguous to the vallies of Grindelwald and Lauterbruennen, ſee Letter on the Chain of Alps obſerved from Bern.

ſited in my expedition to the top of the Grimſel. But the reverend Mr. Wyttenbach of Bern, who has frequently examined its direction from the adjacent heights, aſſured me that thoſe two glaciers are ſeparated from each other by a chain of mountains.

After employing above two hours in aſcending, we were prevented from continuing our progreſs by rugged rocks, and a riſing hill of ice; our guide aſſuring us at the ſame time that it was impoſſible to proceed. Of this we were by no means convinced; but not having any conductor who could lead the way, and not daring to explore theſe unknown regions alone, we deſcended with heavy hearts, much diſappointed that what we had ſeen, though certainly a very curious and ſublime ſight, did not equal our expectations: it added to our chagrin, on being afterwards informed, that though we could ſcarcely have proceeded further in the direction which we took, yet that if we had followed another path we might have penetrated to the Superior Glacier, and reached the baſe of the Schreckhorn. In that part between the mountains, now occupied by the Inferior Glacier, there was formerly a road which communicated with the Vallais, but at preſent impaſſable; and a ſpot was pointed out to us, now covered with ice, where once ſtood a ſmall chapel.

Not far from this glacier of Grindelwald, pines, willows, aſh, and oaks, grow and come to perfection; and near the borders of the ice I gathered ſtrawberries and wild cherries, and obſerved hazel-nuts, barberries, and mulberry-trees. The valley of Grindelwald is extremely fertile; it produces barley, rye, hay, hemp, and fruit-trees in great abundance, and feeds above two thouſand large cattle. I am, &c.

LETTER XXXII.—*Valley and Glaciers of Lauterbruennen.—Fall of the Staubbach.*

A TOLERABLE road leads from Grindelwald to this place, and we met a cart, which to us is become a remarkable object, not having ſeen any thing moving upon wheels ſince we quitted Lucern. The country is pleaſingly diverſified with hanging woods, immenſe rocks, deep precipices, and violent torrents. But I ſuppoſe you are by this time as much accuſtomed to rocks, precipices, and torrents, as the readers of Fingal to blue miſts and hollow winds *.

The valley of Lauterbruennen is emboſomed in the midſt of the Alps. The weſtern boundary, from which the Staubbach falls, would, in any other country, be called an enormous mountain: it here appears only a trifling hill in compariſon with the oppoſite chain, of which the higheſt point is the beautiful Jungfrau-horn, that ſtretches in a ſemicircular direction, and, towering above the adjacent peaks, riſes to a ſtupendous height.

We are now lodged at the houſe of the clergyman of Lauterbruennen; a little village, or rather collection of cottages, ſprinkled, like thoſe of Grindelwald, about the valley and acceſſible parts of the hills. Near the houſe is the celebrated fall of the Staubbach, from which I am juſt returned. This torrent rolls perpendicularly from ſo conſiderable a height, and reſolves itſelf into fine ſpray; the greater part falls clear of the overhanging mountain during its whole deſcent; but the remainder daſhes about

* A nearer and more intereſting, but more difficult paſſage, conducts over the Sheidec from Grindelwald to Lauterbruennen. In my ſecond tour, I propoſed traverſing this paſſage, and had actually ſet off for that purpoſe; but a violent ſhower obliging me to change my reſolution, I continued my journey along the ſame road as before.

It may be proper to apprize the traveller, that there are two Sheidecs, the one ſeparating the vallies of Grindelwald and Meyringen, the other thoſe of Grindelwald Lauterbruennen.

half way againſt a projection of the rock, and flies off with great violence. The clergyman meaſured a ſhort time ago its perpendicular height, and found it nine hundred and thirty feet. The ſun ſhining in an oppoſite direction, a miniature rainbow was reflected towards the bottom of the fall; while I ſtood at ſome diſtance, it aſſumed a ſemicircular figure; as I approached, the extremities gradually coincided, and formed a complete circle of the moſt brilliant colours. In order to have a ſtill finer view, I ventured nearer and nearer, the circle at the ſame time becoming ſmaller and ſmaller; and as I ſtood quite under the fall, it ſuddenly diſappeared. When I looked up to the torrent, it reſembled a cloud of duſt, and from this circumſtance it takes its name; Staubbach ſignifying, in the German language, a ſpring of *duſt*. I paid for my curioſity, by being extremely wet; but then I had the ſatisfaction, at the ſame time, of ſeeing a rainbow in miniature: no uncommon phenomenon, however, as it may be obſerved in any caſcade upon which the rays of the ſun fall in a certain direction. In the preſent inſtance, however, it was ſome conſolation to me that the object happened to be peculiarly ſtriking.

The next morning we rode to the extremity of the vale, in which there are ſome noble points of view, and aſcended to the glaciers, ſtretching from the feet of the Breithorn and Groſſ-horn. In this delightful valley many ſtreams * of the cleareſt water guſh from the earth like ſmall rivers, and numberleſs torrents precipitate themſelves from the mountains. I noticed two in particular, which fall from a greater height than even the Staubbach; but as their deſcent is not ſo direct, they are leſs extraordinary.

After mounting above three hours we reached a ſmall hut, which in ſummer is inhabited by herdſmen, who make excellent cheeſe, and tend numerous herds of cows, goats, and ſwine. Here we feaſted upon cold chamois, which our hoſt had provided for us, and concluded our repaſt with a deſert of delicious cream. From thence we aſcended ſtill further, with conſiderable difficulty arrived at the borders of the glaciers, and were entirely ſurrounded by rugged and almoſt impaſſable rocks. We wiſhed to proceed; but our hoſt aſſuring us that we had only time to return before night, we ſat down cloſe to the ice, and contemplated with rapture and aſtoniſhment part of the great central chain of the Alps; rocks towering above rocks, and mountains riſing above mountains, not more diſtinguiſhed for their ſtupendous height, than for the endleſs variety and rudeneſs of their forms. One of the peaks, which is called the Groſſ-horn, is of a pyramidal ſhape, and capped with frozen ſnow; another, the Breit-horn, is conical, and ſeems crowned with an enormous maſs of tranſparent ice, from which the reflection of the ſun-beams was inexpreſſibly beautiful. But the moſt elevated and moſt majeſtic of the whole group is the Jungfrau-horn, or Virgin's horn, which receives the name of *virgin*, becauſe its ſummit is inacceſſible.

The hollows between the mountains are filled with large vallies of ice, broken into a great variety of ſhapes; and ſeveral torrents burſting from the ſnow, and uniting in their courſe, form the Weiſs-Lutchine, a river which rolls rapidly through the valley of Lauterbruennen, joins the Schwartz-Lutchine, which flows from Grindelwald, and ſwells the Aar. Many of the mountains are covered to a great height with verdure, on which the eye repoſes with delight amid the horrors of ſuch wintry ſcenes. We obſerved alſo, at conſiderable elevations, ſmall villages, the acceſs to which muſt be almoſt as difficult as to the glaciers to which we aſcended.

* From which circumſtance it receives its name, *Lauterbruennen*, in German, ſignifying *many ſprings*.

Notwithſtanding the magnificence and variety of this ſcenery, and the uncommon phenomenon of ice and ſnow in the midſt of ſummer, bordering on foreſts and cultivation; I muſt again repeat, that the ideas which we had previouſly conceived from exaggerated accounts concerning the boundleſs extent and magnificent appearance of the glaciers, were not ſufficiently anſwered. It is remarkable, that every object in Switzerland has more than gratified our expectations except the glaciers, which muſt be conſidered as forming one of the moſt intereſting phenomena in the whole country. This diſappointment ſeems to have been occaſioned by the turgid deſcriptions which we had heard and read of the glaciers of Grindelwald and Lauterbruennen; and we were led to ſuppoſe, that the glacier of the Furca was much inferior in magnitude to thoſe of Grindelwald and Lauterbruennen; whereas, in fact, it was in all reſpects equal, if not ſuperior *.

September 1, 1785.

In 1785 I was conſiderably more delighted and aſtoniſhed with the vallies of Grindelwald and Lauterbruennen than in 1776; becauſe my imagination was not in this, as in the former inſtance, exalted by exaggerated deſcriptions, and led to expect more than could be reached even by nature herſelf, however prodigal in theſe her ſublimeſt works. But the vallies of ice ſtill appear inconſiderable objects when viewed at ſome diſtance, and compared with the ſurrounding mountains, whoſe ſummits and ſides are clothed with vaſt tracts of ice and ſnow. On a nearer approach they become more intereſting, particularly when broken into abrupt ridges and immenſe chaſms; and when their aggregate maſs and numerous branches are obſerved from the ſurrounding heights. Still, however, the traveller may be diſappointed, whoſe imagination has been previouſly filled with turgid deſcriptions, or who applies to the vallies of ice that ſublimity and magnificence, which are principally due to the Alps above and around them.

LETTER XXXIII.—*Lakes of Thun and Brientz.—Paſſage of Mount Gemmi.—Baths of Leuk.*

THE neareſt route from Lauterbruennen to the Baths of Leuk leads acroſs the mountains to Kanderſteig. It is called *le chemin vert*, or the *green way*, becauſe the rocks are for the moſt part covered with herbage. It is only practicable to foot-paſſengers; and I was informed by a Swiſs gentleman who paſſed it, that though ſteep and difficult, it is not dangerous. Its diſtance may be three leagues, and to a perſon not wholly unaccuſtomed to alpine paſſages, would require about five or ſix hours. A *chaſſeur* would perform it in leſs than half the time. In my ſecond expedition in 1785 I had propoſed croſſing this way, but was obliged to decline it, as I could not procure a guide who was acquainted with the road.

I purſued therefore the uſual route, which runs from the entrance of the valley of Lauterbruennen, through a fertile plain, between the lakes of Thun and Brientz. About two leagues from Lauterbruennen I came to the Aar, near its exit from the lake of Brientz, and followed its courſe until it entered that of Thun. This lake is about four leagues long and one broad; and, if we may judge from the ſteepneſs of the mountains with which it is bounded, muſt be very deep; the borders are richly varie-

* We perhaps were leſs ſtruck with the glaciers of Grindelwald and Lauterbruennen, becauſe we had previouſly viewed ſimilar ſcenes in our paſſage through the moſt ſublime regions of Switzerland; whereas theſe are the firſt grand objects in the route uſually taken by travellers through Berne, and conſequently make a greater impreſſion.

gated,

Engraved by J. Storm

Lake of Kandel Steig.

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gated, and preſent ſeveral fine points of view, greatly heightened by many rugged rocks riſing boldly from the margin of the water. We coaſted this lake, through a delightful country, to the ſmall village of Leiſingen; then aſcended to Æſchi, and looked down upon the lakes of Thun and Brientz. In all the maps of Switzerland which have fallen under my obſervation, theſe two lakes are repreſented as if they extended almoſt in a ſtraight line; whereas they are ſituated nearly at right angles to each other. You may judge of their true poſition by the annexed engraving, communicated by the Rev. Mr. Wyttenbach of Bern.

Having deſcended from Æſchi, we ſoon entered the rich valley of Frutigen, parallel to that of Lauterbruennen, and enjoyed for a conſiderable way a proſpect of the glaciers we viſited the day before. This valley ends at the ſmall town of Frutigen; from thence commences that of Kander, watered by a river of the ſame name, and bounded by Mount Kander. In all theſe vallies the rudeneſs and height of the mountains which almoſt encloſe them, contraſted with the beauty and fruitfulneſs of the plains, always fertilized by ſome lively torrent, form a thouſand picturеſque ſcenes, ever changing, and impoſſible to be deſcribed: they are ſtill further embelliſhed by the number of ruined caſtles perched upon points ſeemingly inacceſſible.

From the village of Kanderſteg, delicate travellers who do not chooſe to mount a rugged aſcent, either on foot or on horſeback, are carried in an arm-chair ſupported by means of poles upon men's ſhoulders. We proceeded however, on horſeback, having before rode up ſteeper and more difficult paths. After aſcending about an hour and a half we arrived at the ſummit of the Kander, where a wooden croſs marks the entrance into the Vallais; then traverſed a waving plain of paſture, in which we obſerved a few huts and ſeveral herds of cattle, and at length reached a ſingle houſe on the Gemmi, where we procured ſome refreſhment: here we ſaw nothing but immenſe rocks piled upon one another, with no appearance of vegetation, and the weather was exceedingly cold. Paſſing over a large drift of ſnow, we came to a lake called the Dauben See, about a league in circumference, ſupplied by a conſiderable torrent from a neighbouring glacier. This lake has no viſible outlet, but doubtleſs finds a ſubterraneous paſſage into the *Vallais*.

The chain of mountains which here ſeparates the canton of Bern from the Vallais, is called the Gemmi; from the point of which, over-looking and almoſt over-hanging the Vallais, we had at once a moſt extenſive proſpect over that fertile country, and the rugged Alps of Savoy. The mountain which we deſcended is in many places almoſt perpendicular, and yet a horſe-road has been hewed in the hard rock down this formidable deſcent. It was begun in 1736, and finiſhed in 1741, at the joint expence of the Vallais and the canton of Bern: an aſtoniſhing work! which proves that nothing is impracticable to human induſtry. More than a league has been blown up with gunpowder, and a way formed which ſeems dangerous to thoſe who are unuſed to mountainous countries, or whoſe heads are apt to turn giddy. It is about nine feet broad, and quite hangs over the precipice; in ſome parts, for a conſiderable ſpace, it is a hollow way, open only at one ſide, the rock above projecting over it, of the ſame breadth. The effect is peculiarly ſingular: for, as the road winds continually, the ſcene alſo continually changes; ſo that one moment we commanded an extenſive view, and the next were encloſed with barren rock.

The deſcent from the top to the plain is about two leagues; when you arrive at the bottom, and look up, you cannot obſerve the ſmalleſt traces of a road: ſo that a ſtranger would hardly believe it poſſible, that a paſſage has been formed down the rock, until convinced by his own experience. About thirty years ago, the troops of Bern

deſcended this road, for the purpoſe of aſſiſting the canton of Uri againſt the inhabitants of the valley of Levino, who had revolted; and, what is almoſt incredible, they deſcended with heavy artillery.

This place is famous for hot medicinal ſprings, and is much frequented by invalids during this ſeaſon of the year: the patients either bathe or drink the waters. As far as I can judge from the accounts which I have received concerning their warmth, their analyſis, the method of uſing them, and their efficacy in curing the gout, rheumatiſm, obſtructions, and cutaneous diſorders, they ſeem nearly to reſemble thoſe of Bath. There are ſeveral ſprings of different warmth and of different qualities: according to the moſt accurate experiments made by the Rev. Mr. Wyttenbach, the mercury in Fahrenheit's thermometer, when plunged into the principal ſource, ſtood at 115°; and at 120° in the ſpring which flows near the bridge over the Dala.

The accommodations for the company are very inconvenient; each perſon having for his own uſe a ſmall apartment not more than a few feet ſquare, in which there is juſt room for a bed, a table, and two chairs. The public dining-room is upon a larger ſcale, as is alſo an apartment where the company occaſionally aſſemble. Formerly the accommodations were tolerably good; but unfortunately, in 1719, an *avalanche* from a neighbouring glacier overwhelmed the greater part of the houſes and the baths, and deſtroyed a conſiderable number of inhabitants.

The company, conſiſting of perſons from different quarters of Switzerland, are exceedingly affable and obliging, inſomuch that ſeveral of them have invited us to their reſpective houſes; and this invitation was made with that openneſs and unaffected frankneſs ſo peculiarly characteriſtic of the Swiſs. We dined this morning at eleven; the bell for ſupper is now ringing, and it is ſcarce ſeven. Theſe are primitive hours, but we have travelling appetites; and, provided we meet with refreſhment, the hour and place are of little conſequence.

You are now probably drinking tea in your withdrawing room at Bath, from whence you are enjoying that beautiful proſpect I have ſo often admired. The ſituation of this ſpot is more romantic than that of Bath, and the waters perhaps not leſs efficacious; yet this village contains only a few miſerable houſes, while Bath is one of the fineſt towns in Europe. I had a converſation to-day upon this topic, with a very ingenious and well-informed gentleman of the Vallais. I obſerved to him, that, conſidering the great credit and efficacy of theſe waters, I could not forbear wondering, that the chiefs of the republic had not conſidered the improvement of the accommodations an object worthy of their attention; for if they were rendered more conveient for the reception of invalids, it would undoubtedly be the means of drawing a great number of ſtrangers, and conſequently muſt be highly beneficial to the country. He aſſured me, it had more than once been in contemplation; that ſome perſons of great credit and authority oppoſed all improvements, upon a principle ſimilar to the policy of Lycurgus; conceiving that an influx of ſtrangers would only ſerve to introduce luxury among the inhabitants, and inſenſibly deſtroy that ſimplicity of manners, for which the *Vallaiſans* are ſo remarkably diſtinguiſhed.

How far the ignorance of the people contributes to their true felicity; or how far ſimplicity of manners may be corrupted by *national* improvement? are queſtions which have been much agitated, and will never be decided ſo long as it ſhall be held juſt reaſoning to argue from the abuſe againſt the uſe. But it will readily be allowed, that ſuperſtition is ever the companion of ignorance; and that a people who are both ignorant and ſuperſtitious, muſt neceſſarily be benefited by an intercourſe with nations more improved and enlightened than themſelves.

We

We walked to a ſpot not far from hence, where a communication is formed with the village Albenen. Where the mountain inclines towards a ſlope, a footpath has been cut; but in thoſe parts where the rock is perpendicular, ladders are placed, and the peaſants aſcend and deſcend with heavy burdens upon their ſhoulders. We counted ſeven of theſe ladders. I mention this circumſtance, not as being an object ſo remarkable, perhaps, as is repreſented by ſome travellers, but as it will convey to you an idea of the extreme ruggedneſs and ſingularity of the country. I am, &c.

LETTER XXXIV.—*Republic of the Vallais.—Cardinal Schinner.—Town of Sion.—Martigny.—St. Maurice.*

Sion, Auguſt 19.

SION being nearly the point where the German language terminates, and the French begins, the natives in this part of the Vallais conſequently ſpeak both tongues.

We ſet out this morning at five, and came down a very ſteep valley to Leuk, a ſmall town built upon an eminence near the Rhone, which is here very rapid; and, if we may judge by the breadth of the channel, often overflows its banks. We croſſed at this place, and continued for ſome way through a foreſt of firs, till we again paſſed the river to Siders; from thence we coaſted its banks to Sion, the capital of the Vallais.

Another road leading from the baths of Leuk to Siders, which I traverſed in 1785, though more ſteep and incommodious, is far more intereſting to the traveller who delights in picturesque views. It is called the *galleries*, is cut along the ſides of an abrupt and rugged rock in a zig-zag direction; and bounded by a wooden railing, which overhangs a dreadful abyſs, ſo deep and obſcure, that the river Dala, which rolls impetuouſly through it, is neither ſeen nor heard. The oppoſite chain of mountains is clothed with dark foreſts, enlivened with paſtures, and interſperſed with occaſional villages, which are ſituated one above the other to a conſiderable height, and ſeem ſcarcely acceſſible but to foot paſſengers.

This tract of country, called the Vallais, ſtretches from eaſt to weſt about a hundred miles, and contains one hundred thouſand inhabitants, who all profeſs the Roman Catholic religion. It is divided into Upper and Lower Vallais: the former reaches from the Furca to the Morge, below Sion; and the latter, from that river to St. Gingou, ſituated upon the lake of Geneva.

The Upper Vallais is ſovereign of the Lower Vallais, and compriſes ſeven independent *dixains*, or commonwealths; namely, Sion, Goms, Brieg, Viſp, Leuk, Raren, and Siders; of theſe Sion is ariſtocratical, and the others democratical. They are called *dixains*, becauſe the Upper Vallais being divided into ſeven, and the Lower into three diſtricts, each diviſion is a *dixain*, or *tenth* of the whole.

The Biſhop of Sion was formerly abſolute ſovereign over the greater part of the Vallais; but his authority is at preſent limited to a few particulars. He has the ſole power of pardoning criminals, and ſigns the warrants for execution; the money is coined in his name, and with the arms of the republic. In his acts he ſtyles himſelf Biſhop of Sion, Prince of the German Empire, and Count and Præfect of the Vallais; in days of high ceremony he dines in public, and is waited upon by the firſt noble of the Vallais, who is hereditary treaſurer. He nominates alſo the bailiſs or governors of the two bailliages of Martigny and Arden, and poſſeſſes conſiderable influence from his patronage of church preferment. Upon a vacancy in the ſee, the canons of the chapter of Sion

preſent

preſent from their own body four candidates, one of whom is appointed biſhop by the *Landſrath*, or general diet.

The ſeven dixains form, conjointly with the Biſhop, the republic of the Vallais, and all affairs are tranſacted in the diet, called *Landſrath*, which meets twice every year at Sion. This aſſembly conſiſts of nine voices; the Biſhop; the *Lands-hauptmann*, who is choſen or confirmed by the diet every two years; and the ſeven communities. The Biſhop preſides, the *Lands-hauptmann* collects the votes, and all reſolutions are decided by the majority. Each dixain, although it has but one vote, ſends as many deputies as it pleaſes; they generally conſiſt of four; a judge, a banneret, a captain, and a lieutenant. The judge and the lieutenant are appointed every two years; the two others hold their offices for life.

In all civil cauſes of a certain importance, an appeal lies from the inferior courts of juſtice to the diet in the laſt reſort. Thus, by the inſtitution of this ſupreme council, the communities in this country are firmly united, and form in conjunction one body politic, or republic, for the general affairs of the nation. In other caſes, each of the commonwealths is governed by its own particular laws and cuſtoms.

Both the Upper and Lower Vallais were formerly dependent upon the Biſhop of Sion; but the inhabitants of the two diſtricts united in order to limit his power; and, having ſucceeded, quarrelled for ſuperiority. A bloody war enſued, which terminated in 1475, by the total defeat of the Lower Vallaiſans. Since that period, they have continued ſubject to the Upper Vallais, with the enjoyment, however, of ſome conſiderable privileges.

The republic of the Vallais is an ally of the thirteen cantons, and has formed a particular league with the ſeven Catholic cantons, for the defence of their religion.

The Biſhops of Sion had formerly a conſiderable influence over the political affairs of Switzerland; and Matthew Schinner, the cardinal biſhop, is famous in hiſtory for great abilities, daring ſpirit of intrigue, and reſtleſs ambition. He was born at Milbach, in the dixain of Goms; and in 1500 was raiſed to this ſee. In conſequence of his repreſentations and influence, the Swiſs troops gave a ſingular inſtance of infidelity to their public engagements, by breaking a ſubſidiary treaty which they had recently contracted with Francis the Firſt, ſoon after his firſt invaſion of the Milaneſe. The Swiſs hiſtorians, however, record with triumph the patriotic conduct of two officers, who, remonſtrating againſt this breach of faith, drew off eight thouſand troops, and, returning to Switzerland, in ſome meaſure retrieved the honour of the nation. The remainder of the army, inſtigated by the eloquence of the cardinal, engaged Francis the Firſt near Marignano, in one of the moſt furious battles fought during the bloody wars of Italy. Night alone put a ſtop to the engagement, without ſeparating the combatants; both armies were blended upon the field of battle; and Francis ſlept upon the carriage of a cannon at no great diſtance from a battalion of the enemy. At day-break the Swiſs renewed the charge with their uſual courage, and were received with equal bravery. At length the intrepidity of the King, and the deſperate valour of the French, roſe ſuperior to the repeated attacks of the Swiſs, who retreated to Milan, leaving Francis in poſſeſſion of the field of battle: an advantage, however, which he gained by the loſs of his braveſt troops.

The Cardinal, actuated by the moſt inveterate enmity to the French, occaſioned alſo, by his intrigues, the loſs of the Milaneſe to Francis. Lautrec, in the year 1521, commanded a body of twelve thouſand Swiſs, who formed the principal ſtrength of his army. On the other ſide, the Cardinal obtained, by his influence over his countrymen, a ſecret levy of the like number, to join the enemies of France: thus, for the firſt time, the Swiſs were ſeen combating under oppoſite banners, and ready to commit hoſtilities againſt

againſt each other. Upon this occaſion the cantons diſpatched meſſengers, with peremptory orders for the Swiſs in both armies to return to their country. The Cardinal bribed the meſſengers to conceal theſe orders from the Swiſs in the army of the confederates, and to deliver them only to thoſe who were in the French ſervice. They obeyed accordingly; and this deſertion weakening the army of Lautrec, Milan and the principal towns ſurrendered to the confederates. Soon after this additional inſtance of his intrigues and influence, the Cardinal ended his turbulent life in the conclave, which aſſembled on the death of Leo the Tenth, for the election of a new pope.

The inhabitants of this part of the Vallais are very much ſubject to *goiters*, or large excreſcences in the neck, which often increaſe to a moſt enormous ſize; but, what is more extraordinary, idiocy no leſs abounds. I ſaw many inſtances of both, as I paſſed through Sion; ſome idiots were baſking in the ſun with their tongues out, and their heads hanging down, exhibiting an affecting ſpectacle of intellectual imbecility. The cauſes which produce a frequency of theſe phenomena greatly excite my curioſity; but I ſhall defer my remarks until I ſhall have obtained farther information.

The weather in this incloſed vale is ſo exceedingly ſultry, that although the evening is far advanced, I am quite oppreſſed. This languid heat is probably one of the cauſes which occaſion the inconceivable indolence of the inhabitants: much, however, muſt at the ſame time be attributed to the richneſs of the ſoil, which precludes the neceſſity of labour by almoſt ſpontaneouſly producing the fruits of the earth. In fact, the people aſſiſt nature very little: we paſſed ſeveral vineyards in which the vines were ſuffered to trail upon the ground; whereas, if the branches were properly ſupported, the owner would be well rewarded by the ſuperior quantity and quality of the produce.

The uncleanlineſs of the common people is diſguſting beyond expreſſion. I have juſt been holding a converſation upon this ſubject with my landlord; though himſelf a notorious example, he ſeverely cenſured the dirtineſs of his countrymen, and ſeemed to aſſign it as one cauſe of *goiters*. This aſſertion induced me to examine the perſon of my hoſt with ſomewhat more attention; and I was rather diſappointed to find, that he proved an exception to his own remark. Let me not, however, be underſtood as inſinuating that the inhabitants in general are either goitrous, idiots, indolent, or dirty; like that traveller who aſſerted, that all the women of a certain town were crooked, red-haired, and pitted with the ſmall-pox, becauſe his landlady happened to be ſo. Indeed, I look upon national reflections in general to proceed from the moſt illiberal turn of mind, and have always been cautious not to judge of the phyſical or moral character of any people from a partial and ſuperficial view. But the prevalency, in the preſent inſtance, of goiters and idiocy, and the general dirtineſs and indolence of the common people are too notorious to eſcape the obſervation of the moſt careleſs traveller.

Sion is ſituated near the Rhone, at the foot of three inſulated rocks, that riſe immediately from the plain. The higheſt, called Tourbillon, ſupports the ruins of the old epiſcopal palace, ſtill containing two or three untenanted apartments, in one of which are the portraits of the ſeveral biſhops. On the ſecond rock, denominated Valeria, are obſerved the remains of the old cathedral, and a few houſes belonging to the canons. On Mayoria, the third rock, ſtands the epiſcopal palace, an ancient edifice of ſtone, built in 1547. On ſeeing the apartments I was greatly ſtruck with their plainneſs, and could not avoid reflecting with pleaſure on the ſimplicity of manners which muſt neceſſarily prevail in this country; when the rooms inhabited by the ſovereign, inſtead of beſpeaking the magnificence of a court, are ſcarcely ſuperior to the dwelling of a peaſant. Two apartments principally engaged my attention. The firſt is that in which the diet aſſembles: at the upper end are two armed chairs for the biſhop and the *landshauptmann*,

hauptmann, and on each ſide a row of ſmaller ſeats for the deputies of the ſeven *dixains*. The other apartment is the hall, in which the biſhop holds his court, like the feudal lords of ancient times; at the further extremity is a raiſed ſeat, called a throne, ſurrounded by a wooden baluſtrade, and, as an incitement to wiſdom and impartiality, the figures of Juſtice, and Solomon's Judgment are coarſely painted upon the walls *.

Sion is an ancient town, and was formerly the capital of the *Seduni*, who inhabited this part of the country in the time of Julius Cæſar. A few remaining inſcriptions ſtill prove its antiquity; and, among others ſo obliterated that I was not able to decypher them, I obſerved one which was more legible: it is in honour of the Emperor Auguſtus, during his eleventh conſulſhip. In this inſcription the town is called *Civitas Sedunorum*.

At Sion we parted with our horſes and guides, who had accompanied us from Altdorf; and procured a piece of luxury, to which we had been for ſome time unaccuſtomed, I mean a coach. But, notwithſtanding the concentrated heat of the climate, and the great ſultrineſs of the air, I prefer riding or walking, as by that means I enjoy a more unobſtructed view of the country: indeed the ſcenes are ſo beautiful, and ſo perpetually changing, that the attention is inceſſantly engaged by a variety of new objects.

On entering the Lower Vallais, I perceived as much uncleanlineſs, but a greater appearance of induſtry; and I am informed that the natives are not altogether ſo indolent as the inhabitants of Sion and its environs.

This imputation of indolence will not hold good with reſpect to all the inhabitants of the Upper Vallais: for in the eaſtern part of that diſtrict, which we entered after having croſſed the Furca, the ſoil, though far inferior, was much better cultivated, and the people ſeemed more induſtrious. Some phyſical reaſons may be aſſigned for this difference; for *there* the weather is not ſo ſultry, the water is not unwholeſome, the air re-

* Soon after the capture of Bern, the attempts to introduce the new conſtitution created great diſſatisfaction among the natives of the Upper Vallais. But the Biſhop of Sion, who was then in the power of the French, was under the neceſſity of affecting great pleaſure at the overthrow of his ſovereignty. The *Moniteur* has preſerved his letter on this occaſion to the French Reſident Mangourit, and the anſwer.

"Citizen Reſident, I have learnt with extreme ſatisfaction, that the plan of a conſtitution for the republic of the Vallais, guarantees, under your auſpices, to my dioceſe the preſervation of the catholic, apoſtolic, and Roman religion, in all its purity. I want words to teſtify the moſt lively gratitude; and I doubt not but our religion will be a reſtraint on my flock, and inſpire it with an implacable hatred of licentiouſneſs and anarchy.

"Take, I beſeech you, Citizen, under your powerful protection the church of Sion and all the clergy, of whom the greater part, particularly our chapter, in ſeconding my intentions, and executing my orders, have diſtinguiſhed themſelves by a conduct calculated to inſpire the people with confidence in their worthy repreſentatives, and to re-animate the love of their country.

(Signed) "ANTONY, Biſhop of Sion."

Anſwer of Mangourit.

"Athanaſius cloſed the doors of his church againſt the crimes of Theodoſius; you have opened yours to civic virtues, by facilitating the acceptance of the conſtitution of the Vallais.

"At your voice the canons of Sion repaired to the ſeven upper dixains, to prevent the people from being miſled by malevolence.

"Glory be to your humanity!

"Schinner, one of your predeceſſors, occaſioned the effuſion of much blood; you, Citizen Biſhop, you love to ſpare bloodſhed.

"An article of the conſtitution guarantees to your flock the maintenance of their religious opinions.

"Your wiſe conduct ſecures to you for ever the homage of the friends of liberty, of wiſdom, and of peace." *Moniteur, 15th Germinal.*

markably ſalutary, and we did not obſerve any of thoſe goitrous perſons or idiots, common in the midland parts.

We ſtopped at the village of Martigny, which, according to antiquaries, was the ancient *Octodurum*. It is ſaid, that near this place may be traced the ſite of Sergius Galba's camp, one of Julius Cæſar's lieutenants, who was ſent to ſubdue the *Veragri*, the *Nantuates*, and the *Seduni*; the ancient inhabitants of theſe diſtricts. It ſeems evident indeed from Cæſar's deſcription, in the third book of his Commentaries, that *Octodurum* could not be far from the preſent ſituation of Martigny, which ſtands in a ſmall plain, encircled by high mountains, and divided by the Dranſe, that falls into the Rhone. I cannot, however, aſcertain from my own obſervation, whether any traces of a Roman encampment ſtill remain, nor could I gain the leaſt information from the inhabitants; ſo that the conjecture concerning the ſituation of *Octodurum* reſts only upon the faith of antiquaries, and on the general poſition of the country.

Martigny is a place much frequented by travellers: it leads to the valley of Chamouny, to St. Maurice, and the lake of Geneva, and is the paſſage of the merchandize which is conveyed over the Great St. Bernard into Italy. Near Martigny we paſſed under the majeſtic ruins of La Bathia, an old epiſcopal caſtle, crowning the ſummit of a craggy rock, and impending over the impetuous Dranſe. The road from hence to St. Maurice runs under a chain of rocks, the Rhone flowing at a ſmall diſtance through the middle of a fertile vale. Having croſſed the Trient, a turbid torrent which iſſues from a narrow and obſcure glen, remarkable for its rugged and romantic ſcenery, we arrived at the Piſſe-Vache, a cataract much noticed by travellers. The characteriſtic beauty of this fall is, that it ſeems to burſt from a cleft in the middle of the rock, through hanging ſhrubs, and forms a perpendicular column about two hundred feet in height. The body of water being very ample, and the elevation not ſo conſiderable as to reduce it entirely into ſpray, render the effect very ſtriking. I enjoyed alſo the additional pleaſure of ſeeing the ſun riſe oppoſite to this water-fall. The regular expanſion of the rays enlivening the different parts of the column of water; and the gradual deſcent of the rainbow formed by the ſpray, were inexpreſſibly beautiful. Theſe torrents are my delight; but perhaps they recur too often in my letters to continue to be yours. Formerly travellers paſſed cloſe to the Piſſe-Vache; but a few years ago part of the rock falling down totally obſtructed the road, which now runs through the middle of the valley.

At the extremity of the Lower Vallais, the two chains of mountains that bound this country approach towards the Rhone, which nearly fills the interval between. In this ſpot is ſituated the town of St. Maurice, built almoſt totally upon the rock at the foot of ſome ſteep mountains, and at a ſmall diſtance from the river. The ancient appellation was *Agaunum*: that of St. Maurice is derived from an abbey, erected in the beginning of the ſixth century, by Sigiſmond King of Burgundy, in honour of a ſaint, who is ſuppoſed to have ſuffered martyrdom in this place; he was the leader of the famous Theban legion, ſaid to have been maſſacred by order of the Emperor Maximin, for not renouncing Chriſtianity. This hiſtory has given riſe to much controverſy: while ſome authors have treated it as a mere forgery, others have contended for its authenticity with as much zeal as if the truth of Chriſtianity depended upon the deciſion. Without entering into the merits of the queſtion, I cannot but remark, that the cauſe of Chriſtianity has ſuffered more from weak and imprudent defenders, than from the ſharpeſt attacks of its moſt inveterate adverſaries. Indeed, the queſtion concerning the number and ſufferings of the martyrs has occaſioned much idle diſputation: ſhould we reduce the popular accounts of both within the bounds of probability, there will ſtill remain ſuf-

ficient evidence of the wonderful conſtancy and calm reſolution of thoſe primitive victims; and whether a hundred thouſand, or only fifty, ſuffered, Chriſtianity will equally ſtand upon the ſame immovable foundation. Nor is the inquiry more material concerning the motives that actuated its powerful and cruel adverſaries. It matters not whether Decius ordered the Chriſtians to be maſſacred, becauſe they had been favoured by his predeceſſor Philip, or from his attachment to the Pagan rites; whether Maximin perſecuted them from intereſted motives; Diocleſian as introducing innovations in his government; or whether Conſtantine protected them from conviction or policy. For the truth of Chriſtianity is in no reſpect affected either by the imprudence of its early profeſſors (if with any they were juſtly chargeable), or the political reaſons that influenced the conduct of thoſe emperors.

A few Roman inſcriptions, chiefly ſepulchral, and two defaced columns, are the only uncontroverted remains of the antiquity of St. Maurice. It is principally diſtinguiſhed as being the chief entrance from the canton of Bern into the Vallais. This entrance is formed by a narrow paſs, ſo ſtrongly fortified by nature, that a handful of men might defend it againſt a conſiderable army. The ſtone bridge over the Rhone is much admired for its bold projection: it is of a ſingle arch, and the ſpan is a hundred and thirty feet. Half of this bridge belongs to the Vallais, and the remainder to the canton of Bern *. I am, &c.

LETTER XXXV.—*Of the Vallais.—Goiters and Idiots.*

Trient, Auguſt 22.

I AM now writing from the village of Trient, on my way to Mont Blanc and the alps of Savoy. From the mountain of the Furca, its eaſtern boundary, two vaſt ranges of alps encloſe the Vallais: the ſouthern chain ſeparates it from the Milaneſe, Piedmont, and part of Savoy; the northern, from the canton of Bern. Theſe two chains in their various windings, form ſeveral ſmall vallies, watered by numerous torrents that ruſh into the Rhone, as it traverſes the whole diſtrict from the Furca to St. Maurice. A country thus entirely encloſed within high alps, and conſiſting of plains, elevated valleys, and lofty mountains, muſt exhibit a great variety of ſituations, climates and productions. Accordingly, the Vallais preſents to the curious traveller a quick ſucceſſion of proſpects, as beautiful as diverſified. Vineyards, rich paſtures covered with cattle, corn, flax, fruit-trees, and foreſts, occaſionally bordered by naked rocks crowned with everlaſting ſnow.

The productions of the Vallais vary according to the great diverſity of climates by which this country is diſtinguiſhed. It ſupplies more than ſufficient wine and corn for interior conſumption, and exports a conſiderable quantity of both; the ſoil in the midland and lower diſtricts being exceedingly rich and fertile. In the plain, where the heat is collected and confined between the mountains, the harveſt is uſually finiſhed in

* At an early period of the French revolution, the diſaffected party of the Lower Vallais appealed to France to emancipate their country from their ſubjection to the Upper Vallais, but the French not having matured their ſcheme of fraternization, their petition was rejected.

In February 1798, however, the people of the Lower Vallais were enfranchiſed, and admitted to an equality of rights by the Upper Vallais; but after the conqueſt of Bern, and the revolution of the greater part of Switzerland, the inhabitants of the Upper Vallais rejected the new conſtitution, took up arms, and defended themſelves with great ſpirit. After ſeveral bloody defeats, and the capture of the caſtle of Sion, which was ſtormed by the French, the natives ſubmitted, and both diſtricts were moulded into one department called the Vallais, of which the capital is Sion.

July; whereas, in the more elevated parts, barley is the only grain that can be cultivated with any ſucceſs, and the crop is ſeldom cut before November. About Sion, the fig, the melon, and all the other fruits of Italy, come to perfection: in conſequence of this ſingular variety of climates, I taſted in the ſame day, ſtrawberries, cherries, plums, pears, and grapes; each the *natural* growth of the country.

There are no manufactures of any conſequence; and indeed the general ignorance of the people is no leſs remarkable than their indolence; ſo that they may be conſidered in regard to knowledge and improvements, as ſome centuries behind the Swiſs, who are an enlightened nation. The peaſants ſeldom endeavour to ameliorate thoſe lands where the ſoil is originally bad, or to draw the moſt advantage from thoſe which are uncommonly fertile; having few wants, and being ſatisfied with the ſpontaneous gifts of nature, they enjoy her bleſſings without much conſidering in what manner to improve them.

Before I take leave of the Vallais, I ſhall communicate the reſult of my enquiries concerning the cauſes which contribute to render goitrous perſons and idiots common in theſe parts; premiſing, at the ſame time, that I muſt ſtand greatly in need of your candour, when I venture to treat a ſubject ſo extremely complicated, and on which ſo many different opinions have been advanced by naturaliſts and phyſicians.

The notion that ſnow-water occaſions goiters, is totally void of foundation; for on that ſuppoſition, why are they common in the midland and lower parts, and extremely rare in the higher regions of Switzerland? particularly what reaſon can be aſſigned, why the natives of thoſe places that lie moſt contiguous to the glaciers, and who drink no other water than what deſcends immediately from thoſe immenſe reſervoirs of ice and ſnow, are not ſubject to this malady? Why are the inhabitants of thoſe countries in which there is no ſnow, afflicted with it? For theſe guttural tumours are to be found in the environs of Naples, in the iſland of Sumatra, and at Patna and Purnea, in the Eaſt Indies, where ſnow is unknown.

But, inſtead of repeating the various opinions on this ſubject, I ſhall at preſent confine myſelf to the reſult of my own obſervations and inquiries.

The ſprings of this diſtrict are impregnated with a calcareous matter, called in Switzerland *tuf**, nearly ſimilar to the incruſtations of Matlock in Derbyſhire, ſo completely diſſolved as not to affect the tranſparency of the water. Will it be deemed improbable, that the impalpable particles of this ſubſtance ſhould thus introduce themſelves, by means of the blood, into the glands of the throat, and produce goiters†? I ground this opinion on the following obſervations and facts:

* The Porus of the older authors.

The Tophus glareoſo, argillaceus Polymorphus, of Linnæus, 186. 1.

The Tophus Polymorphus of Wallerius, Syſt. vol. ii. p. 394.

The Tophi of Kirwan, p. 25, called *Duckſtein* by the Germans.

† Dr. Baillie, phyſician to St. George's Hoſpital, has lately given a beautiful plate illuſtrative of the diſeaſed appearances of the Thyroid Gland, which is the ſeat of the Bronchocele, or Goiter. "When a ſection is made," he ſays, "of the thyroid gland affected with this deſeaſe, it is found to contain a number of cells filled with a tranſparent viſcid fluid. This fluid becomes ſolid, like jelly, when the gland has been preſerved for ſome time in ſpirits." He notices too, that a few of the cells of one gland, which he divided, were filled with a gritty, hard, whitiſh matter.

It appears alſo that the ſtructure of the thyroid gland is favourable to the depoſition and detention of ſtony particles carried into it by the blood; for it is ſupplied by four arteries, uncommonly large in proportion to the ſize of the gland, and has no excretory duct, through which any ſubſtance once depoſited can paſs. Hence a very inconſiderable depoſition of tuf might be ſufficient to produce by irritation ſuch an abundant ſecretion of viſcid fluid as to diſtend the cells, and by this enlargement of the gland, gradually to occaſion goiters. *Baillie's Morbid Anatomy*, p. 311. *Second Faſciculus, plate* I.

To ſpeak in general: during my travels through Europe, I never failed to obſerve that *tuf*, or this calcareous depoſition, abounds in all thoſe diſtricts wherein goiters are common. I noticed goitrous perſons and much *tuf* in Derbyſhire, in various parts of the Vallais, in the Valteline, at Lucern, Friburgh, and Bern, near Aigle and Bex, in ſeveral places of the Pays de Vaud, near Dreſden, in the valleys of Savoy and Piedmont, near Turin and Milan.

To deſcend to particular inſtances. The inhabitants of Friburgh, Bern, and Lucern, are much ſubject to guttural excreſcences. With reſpect to Friburgh, I obſerved that one of the principal ſprings which ſupplies the town with water, iſſues from a neighbouring ſtone-quarry, and has formed large depoſitions of *tuf* on the rock from which it bubbles. The pipes alſo which convey water to the public fountains at Bern, are charged with the ſame calcareous ſediment; and a gentleman, on whoſe veracity I can depend, aſſured me, that he is ſubject to a ſmall ſwelling in the throat, which uſually increaſes in winter, when he is chiefly reſident at Bern, and diminiſhes in ſummer on his removal to other places, where the waters are not loaded with *tuf*.

I was, moreover, informed by General Pfiffer, that at Lucern all the waters, excepting one ſpring, are impregnated with *tuf*, and that the natives who dwell near that ſpring, are much leſs ſubject to goiters than the other inhabitants; that the ſame difference is obſerved among the members of the ſame family, between thoſe who drink no water but what is drawn from that ſpring, and the others who do not uſe that precaution. The general ſhewed me alſo the tin veſſel, in which water was every morning boiled for his uſe, and which was ſo ſpeedily and thickly incruſtated as to render it neceſſary to have it cleanſed twice a-week. The water which yields this depoſition is as tranſparent as chryſtal *.

I alſo viſited many places contiguous to thoſe diſtricts wherein goiters and *tuf* are frequent, and having preciſely the ſame ſituation and climate, yet I obſerved no goiters among the inhabitants, nor any appearance of *tuf*.

But the ſtrongeſt proof in favour of this opinion is derived from poſitive fact. A ſurgeon whom I met at the baths of Leuk, informed me, that he had not unfrequently extracted concretions of *tuf ſtone* from ſeveral goiters; and that from one in particular which ſuppurated, he had taken ſeveral flat pieces, each about half an inch long; the ſame ſubſtance, he added, is found in the ſtomachs of cows, and in the goitrous tumours to which even the dogs of the country are ſubject. He likewiſe aſſured me, that in the courſe of an extenſive practice, he had diminiſhed and cured the goiters of many young perſons by emollient liquors and external applications; that his principal method to prevent them in future conſiſted in removing the patients from the places where the ſprings are impregnated with *tuf*, and, if that could not be contrived, by forbidding the uſe of water which was not purified. He confirmed the report that infants are occaſionally born with guttural ſwellings, particularly thoſe whoſe parents are goitrous, and remarked that one of his own children had at its birth a goiter as large as an egg; neither he nor his wife, who were both foreigners †, were afflicted with that malady. He had diſſipated it by external remedies; and ſince that period, had inva-

* Although it appears that wherever there are goiters there is tuf-ſtone; yet the reverſe is by no means true, that wherever the waters depoſit tuf, there are *always* goiters: for perhaps the natives do not drink of the ſprings which are loaded with *tuf*, or that ſubſtance is not ſufficiently diſſolved in the waters; abſolute ſolution being, perhaps, neceſſary to produce theſe ſwellings.

† In the former inſtance, goiters may, though perhaps erroneouſly, be eſteemed hereditary; but in the latter, where the parents are both foreigners and not goitrous, can ſcarcely be derived from any other cauſe than the aliment of the mother.

riably

riably prohibited his family from taſting the ſpring waters, unleſs they were diſtilled, or mixed with wine or vinegar; by which means he preſerved them from thoſe tumours that were extremely common among the natives of the town which he inhabited.

Although it is by no means my intention to trouble you with the various opinions which have been advanced on this ſubject; yet it would be unjuſt to withhold that of M. de Sauſſure, whoſe accurate reſearches and profound inveſtigation on philoſophical ſubjects deſerve to be weighed with the greateſt attention. That able naturaliſt, in a recent publication *, attributes the production of goiters not to the waters, but principally to the concentrated heat of the climate, and ſtagnation of the air. He informs us, that in all his travels through the Alpine countries, he never obſerved goiters in any places which are elevated more than 500 or 600 toiſes † above the level of the ſea: he noticed them in thoſe vallies where the heat is concentrated, and the air ſtagnates, and that they uſually ceaſe wherever the valley terminates, and the country expands into a large plain. With great deference, however, to his opinion, may I be permitted to obſerve, that the concluſion does not abſolutely follow from theſe premiſes? For it may be remarked, that in places elevated more than 500 or 600 toiſes above the level of the ſea, the ſprings are too near their ſources to have diſſolved a ſufficient quantity of calcareous matter, or ſo minutely as may be requiſite for the generation of goiters; that when the valley expands into a plain, the waters may depoſit their ſediment by mixing with the rivers and lakes, or by filtrating through the earth and gravel. But although the two cauſes mentioned by Sauſſure do not ſolely produce, they may *aſſiſt* in producing guttural excreſcences, by relaxing the fibres, and diſpoſing the glands of the throat to admit more eaſily the introduction of the impalpable particles in the water. For it is obſervable, that women and children, whoſe frames are more relaxed than thoſe of men, are more liable to be afflicted with theſe ſwellings; that the natives of thoſe diſtricts moſt remarkable for the ſize and number of goiters, are extremely wan and livid, much ſubject to intermitting fevers, and other diſorders judged to proceed from relaxation. Although the concentrated heat, and ſtagnation of the air, may be allowed to have conſiderable influence on the human body, yet they do not ſeem ſufficient for the effect in queſtion, without the intervention of ſome other cauſe: this cauſe *ſeems* to be the water, ſhould the facts already ſtated prove conſonant to truth and experience.

It may be neceſſary, however, to obviate an objection, that goiters muſt rather originate from climate and ſituation; becauſe foreigners eſtabliſhed in the country are *never* afflicted with thoſe tumours, while their children are no leſs ſubject to them than the natives. But is it uncontrovertible, that *no* foreigner has ever been afflicted with this malady? The queſtion, I ſhould preſume, can ſcarcely be replied to in the affirmative. And all that can be eſtabliſhed, with any degree of certainty is, that foreigners are *leſs* ſubject to theſe ſwellings than their children or the natives. In this reſpect the anſwer is evident. Perſons who uſually ſettle in foreign countries are adults; and adults are doubtleſs much leſs liable than children to an endemial malady, whoſe operation is gradual, and which requires much time before its effects are viſible. It is remarked, that among the natives themſelves thoſe perſons who have eſcaped this diſorder during their infancy, are ſeldom attacked by it to any conſiderable degree at a more advanced age.

In reaſoning upon this, as well as on ſimilar ſubjects, where a cauſe is ſought for capable of producing a certain effect, it is neceſſary to eſtabliſh a primary and general cauſe, which *always* and *neceſſarily* exiſts, wherever that effect is produced, and to exclude thoſe circumſtances which do not *always* and *neceſſarily* exiſt, wherever that effect is produced.

* See Voyages dans les Alpes, ch. 48. vol. ii. p. 480.

† 3,200 and 3,840 Engliſh feet.

Thus,

Thus, in the preſent inſtance: if ſnow-water occaſions goiters, wherever there are goiters there *muſt* be ſnow-water, which is contrary to fact and experience. If the concentrated heat of the climate, and ſtagnation of the air, are *neceſſary* to the formation of goiters, thoſe excreſcences could never be formed where theſe cauſes are wanting, which is not confirmed by fact and experience. If waters impregnated with *tuf*, or with certain calcareous ſubſtances, produce goiters; wherever there are goiters, the natives muſt drink waters ſo impregnated, and this *ſeems* agreeable to fact and experience *.

The ſame cauſes which generate goiters, *probably* operate in the caſe of idiots; for wherever goiters prevail to a conſiderable degree, idiots invariably abound: ſuch is the nice and inexplicable connection between our bodies and our minds, that the one ever ſympathiſes with the other; and it is by no means an ill-grounded conjecture, that the ſame cauſes which affect the body ſhould alſo affect the mind, or, in other words, that the waters which create obſtructions and goiters ſhould alſo occaſion mental imbecility †.

Although theſe idiots are frequently the children of goitrous parents, and have uſually thoſe ſwellings themſelves, yet they are ſometimes the offſpring even of healthy parents, whoſe other children are properly organized, and are themſelves free from guttural excreſcences. I obſerved ſeveral children, ſcarcely ten years of age, with very large goiters. Theſe tumours, when they increaſe to a conſiderable magnitude, check reſpiration, and render thoſe who are afflicted with them exceedingly indolent and languid. Some perſons have, in oppoſition to the opinion which I have ventured to advance, ſuppoſed that the ſmall glandular ſwellings, which are common in many other parts, and the large excreſcences, are more particularly obſerved in the Vallais, in the valley of Aoſt, and in ſome other places, do not proceed from the ſame cauſe, and are not the ſame diſorder. But ſufficient reaſons have not been aſſigned for this opinion. During my expedition through the Vallais and other parts of Switzerland, I noticed ſome of all proportions, from the ſize of a walnut to almoſt the bigneſs of a peck loaf. As the ſame gradation may be alſo obſerved in the ſpecies of idiots; by a ſimilar mode of argument, thoſe who poſſeſs ſome faint dawnings of reaſon might be diſcriminated from others, who are totally deaf and dumb, and give no proof of exiſtence but the mere animal ſenſations. Whereas it is probable that in both inſtances the greater or leſſer derangement of the body or mind does not indicate a different complaint, but only different degrees of the ſame complaint.

It is to be preſumed, that a people accuſtomed to theſe excreſcences will not be ſhocked at their deformity; but I do not find, as ſome writers aſſert, that they conſider them as beauties. To judge from the accounts of many travellers, it might be ſuppoſed that the natives, without exception, were either idiots or goitrous; whereas, in fact, the Vallaiſans in general are a robuſt race; and all that with truth can be affirmed is, that goitrous perſons and idiots are more abundant in ſome diſtricts of the Vallais than perhaps in any other part of the globe ‡.

It

* The learned Mr. Whitaker, in his intereſting account of the paſſage of Hannibal over the Alps, vol. i. p. 194, agrees with me in imputing the goiters to the waters, but to the waters impregnated with *metallic* particles, and he ſupports his opinion by the authority of Simler; but ſurely if ſo, the metallic particles would have been conſtantly found in the waters, and *occaſionally* in the glandular ſwellings, which is not the fact.

† It has been ſuggeſted to me, by a very intelligent phyſician, that perhaps the impalpable particles of ſtone may penetrate by means of the blood into the glands of the brain, and form concretions which may affect that organ. It is a well known fact, that earthy matter is frequently found in the pituitary gland.

‡ I cannot withhold from the reader a curious paſſage on goitrous perſons and idiots, from an intereſting work publiſhed ſince my letters, which tends to confirm my remarks on this ſubject.

" Goiters

It has been aſſerted alſo that the people very much reſpect theſe idiots, and even conſider them *as bleſſings from heaven*; which is ſtrongly contradicted by others. Upon my queſtioning ſome gentlemen of this country, at the baths of Leuk, they treated the notion as abſurd and falſe; but whether they delivered their real ſentiments, or were unwilling to confirm what might lower their countrymen in the opinion of a ſtranger, will admit perhaps of ſome doubt. For having ſince that time frequently enquired among the lower ranks, I am convinced that the common people eſteem them bleſſings. They call them "*Souls of God, without ſin:*" and many parents prefer theſe idiot-children to thoſe whoſe underſtandings are perfect; becauſe, as they are incapable of intentional criminality, they conſider them as certain of happineſs in a future ſtate. Nor is this opinion entirely without its good effect, as it diſpoſes the parents to pay greater attention to ſuch helpleſs beings. Theſe idiots are ſuffered to marry, as well among themſelves as with others. I am, &c.

EXTRACT from SAXO GRAMMATICUS, formerly referred to.

NEC ſilentio implicandum, quod ſequitur. Toko quidam aliquamdiu regis (i. e. Haraldi Blaatand) ſtipendia meritus officiis quibus commilitones ſuperabat complures virtutum ſuarum hoſtes effecerat. Hic forte ſermone inter convivas temulentius habito tam copioſo ſe ſagittandi uſu callere jactitabat, ut pomum quantumcunque exiguum baculo e diſtantiâ ſuperpoſitum, primâ ſpiculi directione feriret. Quæ vox primum obtrectantium auribus excepta regis etiam auditum attigit. Sed mox principis improbitas patris fiduciam ad filii periculum tranſtulit, dulciſſimum vitæ ejus pignus baculi loco ſtatui imperans. Cui niſi promiſſionis auctor primo ſagittæ conatu pomum impoſitum excuſſiſſet, proprio capite inanis jactantiæ pœnas lueret. Urgebat imperium regis militem majora promiſſis edere, alienæ obtrectationis inſidiis parum ſobriæ vocis jactum carpentibus, &c.——

Exhibitum Toko adoleſcentem attentius monuit, ut æquis auribus capiteque indeflexo quam patientiſſime ſtrepitum jaculi venientis exciperet, ne levi corporis motu efficaciſſimæ artis experientiam fruſtraretur. Præterea demendæ formidinis conſilium circumſpiciens, vultum ejus, ne viſo telo terretur, avertit. Tribus deinde ſagittis pharetrâ expoſitis prima quam nervo inferuit propoſito obſtaculo incidit.——

Interrogatus autem a rege Toko cur plura pharetræ ſpicula detraxiſſet, cum fortunam arcus ſemel duntaxat experimento proſequi debuiſſet. "Ut in te," inquit, "primi errorem reliquorum acumine vindicarem, ne mea forte innocentia pœnam tui impunitatem experiretur violentia. Quo tam libero dicto et ſibi fortitudinis titulum deberi docuit, et regis imperium pœna dignum oſtendit."—Lib. x. p. 286. edit. Leipſic, 1771.

"Goiters and idiots are very common in that part of Tartary which borders upon the Chineſe Wall. Both ſexes are ſubject to theſe ſwellings, but females more than males; the latter removing oftener from the ſpots where the cauſes exiſt, whatever they may be that occaſion them.

"Theſe preternatural tumours did not appear to be attended with any other ſymptoms affecting the general health, or corporal functions of thoſe in whom they were obſerved. But the minds of many of them were much weakened, and perhaps of all in a leſs degree. Some were reduced to a ſtate of abſolute idiocy. The ſpectacle of ſuch objects, which fails not to convey a ſerious and even melancholy impreſſion to perſons who view them for the firſt time, produces no ſuch effect upon thoſe among whom they are bred. The objects themſelves are, in their general habits, cheerful, and lead a mere animal life, as contradiſtinguiſhed from that in which any thought or reflection is concerned. As they act alone from inſtinct, or the mere impulſe of the ſenſes, ſo their actions, however injurious they may happen to prove to others, are free from intentional malice, and occaſion no reſentment. Their perſons are conſidered in ſome degree as ſacred; and they are maintained by their families with peculiar care."—*Account of the Embaſſy to China, vol.* ii. *p.* 202.

LETTER XXXVI.—*Paſſage of the Tête Noire.—Col de Balme.—Mont Blanc—Its great Elevation.*

Geneva, Auguſt 28.

QUITTING Trient, we traverſed ſome narrow vallies, through foreſts of pine and fir, by the ſide of a ſmall but impetuous torrent, which takes its riſe from the neighbouring glacier. The road, which is very rugged, is carried over the ſteep crags of a mountain called *La Tête Noire*. A little way from Trient we entered the duchy of Faucigny, ſubject * to the King of Sardinia, and arrived at the vale of Chamouny, the great mountains and glaciers of Savoy riſing majeſtically before us.

Another way leads from Trient to Chamouny over the *Col de Balme*. I paſſed it on a mule the 7th of September 1785; it is exceedingly ſteep, but not dangerous, as repreſented by many travellers; for I did not even find it neceſſary to diſmount; and the path, which is in no part bare rock, runs through a thick wood clothing the ſides of the mountain. We ſet off from Trient on this expedition about half paſt four, with the expectation of ſeeing the ſun riſe on the ſummit of Mont Blanc, but were diſappointed; for we did not reach the Col de Balme in leſs than two hours, and day had already begun to break. We enjoyed, however, from the ſummit an extenſive proſpect, which many travellers conſider as equal to the moſt ſublime proſpects in Switzerland: on one ſide it commands the Vallais, the Alps of St. Bernard, and the diſtant mountains of the cantons of Underwalden and Bern; the other comprehends Mont Blanc and the circumjacent heights. I obſerved the *Point de Mouſſon*; the *Mortine*, ſupporting on its top the glacier of *Buet*, on which De Luc made his celebrated experiments to aſcertain the ſtate of the atmoſphere; the *Point de la Tour; Les Aiguilles d'Argentiere;* the *Aiguille de Midi*, a piked rock ſtarting out of a large maſs of ſnow; and, laſtly, *Mont Blanc* itſelf. The higheſt point of this gigantic mountain is in the ſhape of a compreſſed hemiſphere, and is called from its form *La Boſſe du Dromedaire*; from that point it gradually ſinks, preſents a kind of concave ſurface of ſnow, in the midſt of which is a ſmall pyramid of ice; then riſes into a ſecond hemiſphere, called by ſome *Little Mont Blanc*, but with more propriety by others, *Le Dôme du Milieu*, or the *Middle Dome*; thence it deſcends into another concave ſurface terminating in a point, indiſcriminately ſtyled by the natives *Aiguille de Gouté*, *Point de Gouté*, and *Dôme de Gouté*, and which I ſhall name the *Dôme of Goutè*; from that dome it ends abruptly, and loſes itſelf amid the mountains that bound the vale of Chamouny.

Mont Blanc is particularly diſtinguiſhed from other mountains by a mantle of ſnow, which clothes its ſummit and ſides, almoſt without the intervention of the leaſt rock to break the glare of the *white* appearance, from whence its name is derived. This circumſtance frequently deceives the eye unaccuſtomed to ſuch objects, and, in many ſituations renders it leſs lofty in appearance than it is in reality. Although the ſummit was more than ſeven thouſand feet above the ſpot where I ſtood, yet it did not impreſs me with that aſtoniſhment which might be expected from its ſuperior height and magnitude above the circumjacent mountains. I was indeed more ſtruck with the firſt view of the Schreckhorn from the top of the Scheidec, than of Mont Blanc from the Col de Balme.

* Now ſubject to France.

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The ſummit of Mont Blanc being of a roundiſh form, and covered with ſnow, unites beauty with grandeur; whereas the Schreckhorn being piked, naked, and its ſhagged ſides only ſtreaked with ſnow, its grand characteriſtics are ruggedneſs and horror; and hence it derives the name of Schreckhorn, or the *Peak of Terror* *. But Mont Blanc ſoon re-aſſumed its real importance, ſeemed to increaſe in ſize and height, and ſolely attracted our attention, until we entered the vale of Chamouny.

You who are totally unacquainted with Alpine ſcenes, may perhaps conceive a faint idea of the elevation of this gigantic mountain, on being informed that the mantle of ſnow, which appears to cover its top and ſides, exceeds an altitude of four thouſand feet perpendicular, and nine thouſand feet in a horizontal direction from the *Dome of Goute* to the ſummit; and that the height of the ſnow and ice, eſtimated from the ſource of the Arveron, at the bottom of the glacier of Montanvert, to the ſummit of Mont Blanc, cannot be leſs than twelve thouſand perpendicular feet, or near three times as high as Snowdon in North Wales.

Five glaciers extend into this vale of Chamouny, and are ſeparated from each other by foreſts, corn-fields, and meadows; ſo that large tracts of ice are blended with cultivation, and perpetually ſucceed each other in the moſt ſingular and ſtriking viciſſitude. Theſe glaciers, which lie chiefly in the hollows of the mountains, and are ſome leagues in length, unite at the foot of *Mont Blanc*, the higheſt mountain in Europe, and probably of the antient world.

According to the calculations of De Luc, (by whoſe improvement of the barometer elevations are taken with a degree of facility and accuracy before unattainable,) the height of this mountain above the level of the ſea is 2391¾ French toiſes, or 15,304 Engliſh feet †; or, according to Sir George Schuckborough, of 15,662 feet.

De Luc having found the altitude of the *Buet*, from thence took geometrically the elevation of *Mont Blanc*. The labours of this celebrated naturaliſt, and his rules for computing heights by the barometer, are to be found in his very valuable treatiſe, "*Sur les Modifications de l'Atmoſphère.*" Theſe rules are explained, and his tables reduced to Engliſh meaſure, by Dr. Maſkelyne, Aſtronomer Royal; and ſtill more fully by the Rev. Dr. Horſley ‡.

The accuracy of theſe barometrical meaſurements was verified by Sir George Schuckborough, in a number of ingenious experiments to aſcertain the elevation of ſeveral mountains of Savoy, a ſhort time before I arrived at Geneva. He followed De Luc's method; computed the heights of ſeveral mountains, reciprocally, by barometrical and geometrical obſervations, and perceived that they almoſt exactly coincided. Having found the elevation of the *Mole* above the lake of Geneva, he took from thence the geometrical altitude of *Mont Blanc*. During the courſe of theſe experiments, he was enabled to correct ſome trifling errors in De Luc's calculations, to improve his diſcoveries, and to facilitate the means of taking elevations, by ſimplifying the tables and rules.

* The traveller will recollect that I am here deſcribing Mont Blanc, as obſerved from the Col de Balme, and the vale of Chamouny. Thoſe who have ſeen it from the valley of Aoſt aſſure me, that it is not on that ſide covered with a mantle of ſnow, but exceeds even the Schreckhorn in ruggedneſs and horror.

† In reducing the French toiſe, which is equal to ſix French feet, to Engliſh meaſure, I have conſidered the proportion of the Engliſh to the French foot as 15 to 16. Its real proportion, according to the accurate calculation of Sir George Schuckborough, is 15 to 16 and a ſmall fraction; but the error in my calculation being not one toiſe in a thouſand, in order to prevent confuſion, I have omitted the fraction.

‡ Now Biſhop of Rocheſter. Both theſe treatiſes are publiſhed in the Philoſophical Tranſactions for the year 1774.

I am convinced, from the ſituation of *Mont Blanc*, and its ſuperior altitude above the ſurrounding mountains, that it exceeds the loftieſt point in Switzerland, which is, next to *Mont Blanc*, the moſt elevated ground in Europe. That it is higher than any part of Aſia and Africa, is an aſſertion which can only be proved by comparing the judicious calculations of modern travellers with the exaggerated accounts of former writers; and by ſhowing that there is probably no mountain in thoſe two quarters of the globe, whoſe altitude ſurpaſſes 15,000 feet.

Perhaps in no inſtance has the imagination of man been more given to amplification, than in aſcertaining the heights of the globe. Gruner, in his deſcription of the Swiſs glaciers, has mentioned the elevation of ſome remarkable mountains, agreeably to the calculations of ſeveral famous geographers and travellers, both ancient and modern.

	Toiſes.	Eng. Feet.
According to Strabo, the higheſt mountain of the ancient world was about	3,411	21,830
According to Riccioli	58,216	372,382
According to Father Kircher, who took the elevations of mountains by the uncertain method of meaſuring their ſhadows,		
Ætna is	4,000	25,600
The Peak of Teneriff	10,000	64,000
Mount Athos	20,000	128,000
Lariſſa in Egypt	28,000	179,200

But theſe calculations are evidently ſo extravagant, that their exaggeration muſt ſtrike the moſt common obſerver. If we conſult more modern and rational accounts, it appears that the Peak of Teneriff and Ætna have been frequently ſuppoſed the higheſt points of the globe. Teneriff is eſtimated by ſome natural philoſophers to be 3,000 toiſes, or 19,200 feet above the level of the ſea; but, according to Feuillé, this elevation is reduced to 2,070 toiſes, or 13,248 feet; whereas Ætna, by the accurate computations of Sauſſure, riſes only * 1672 toiſes, or 10,700⅘ feet above the ſea. Hence it appears, that there are no mountains, except thoſe in America, (the elevation whereof, according to Condamine, ſurpaſſes 3000 toiſes, or 19,200 feet,) which are equal to the altitude of Mont Blanc.

In order, however, to determine with abſolute certainty that Mont Blanc is the higheſt point of the old world, it would be neceſſary to eſtimate, by the ſame mode of menſuration, Mont Blanc, the Schreckhorn, the Peak of Teneriff, the mountains of the Moon in Africa, the Taurus, and the Caucaſus.

* According to Sir George Schuckborough, 1,672 toiſes, or 10,954 feet; who ſays, "I have ventured to compute the height of this celebrated mountain from my own tables, though from an obſervation of M. De Sauſſure in 1773, which that gentleman obligingly communicated to me. It will ſerve to ſhow that this volcano is by no means the higheſt mountain of the old world; and that Veſuvius, placed upon Mount Ætna, would not be equal to the height of Mont Blanc, which I take to be the moſt elevated point of Europe, Aſia, and Africa."

I am happy to find my conjectures corroborated by that ingenious and accurate obſerver.

Height of Ætna, according to Sir George	10,954	Feet.
Of Veſuvius, according to Sauſſure	3,900	
Of both together	14,854	
Height of Mont Blanc, according to Sir George	15,662	
Difference, or the height of Mont Blanc above that of Ætna and Veſuvius united	808	

For ſtill further information on this curious ſubject, the reader is referred to M. Trembley's *Analyſe d'Experiences ſur la Meſure des Hautures*, in Sauſſure's *Voyages dans les Alpes*, vol. ii. p 616.

The chain of the Caucaſus has long been deemed the higheſt mountains of Aſia; and ſome philoſophers, upon conſidering the great ſuperiority of the eaſtern rivers over the European, both in depth and breadth, have drawn a preſumptive argument, that the Aſiatic mountains are much more lofty than thoſe of Europe. But conjectures are now baniſhed from natural philoſophy; and, until it ſhall be proved from undoubted calculations, that the higheſt part of the Caucaſus riſes more than 15,000 feet above the level of the ſea, Mont Blanc may be fairly conſidered as more elevated.

LETTER XXXVII. — *Glacier of Boſſon.—Montanvert.— Expedition acroſs the Valley of Ice.*

AUGUST 23d, we mounted by the ſide of the glacier of Boſſon, to *les Murailles de Glace*, ſo called from their reſemblance to walls: they form large ranges of ice of prodigious thickneſs and ſolidity, riſing abruptly, and parallel to each other *. Some of theſe ranges appeared about a hundred feet high; but, if we may believe our guides, they are four hundred feet above their real baſe. Near them were pyramids and cones of ice of all forms and ſizes, ſhooting to a very conſiderable height, in the moſt beautiful and fantaſtic ſhapes. From this glacier, which we croſſed without much difficulty, we enjoyed a fine view of the vale of Chamouny.

The 24th. We had propoſed ſallying forth this morning very early, in order to viſit the valley of ice in the glacier of Montanvert, and to penetrate as far as the time would admit; but the weather proving cloudy, and likely to rain, we deferred our departure till nine. Having procured three guides, we aſcended on horſeback about three miles; we were then obliged to diſmount, and ſcrambled up a ſteep and rugged path, called "the road of the *cryſtal-hunters*." From the ſummit of the Montanvert we deſcended to the edge of the glacier, and made a refreſhing meal upon ſome cold proviſion which we brought with us. A large block of granite, called "*La pierre des Anglois*," ſerved for a table; and near us was a hovel †, where thoſe who make expeditions towards Mont Blanc frequently paſs the night. The ſcene around us was magnificent and ſublime; numberleſs rocks riſing boldly above the clouds, ſome of whoſe tops were bare, others covered with ſnow; many of theſe peaks, gradually diminiſhing towards their ſummits, end in ſharp points, and are called *Needles*. Between theſe rocks the valley of ice ſtretches ſeveral leagues in length, and is nearly a mile broad, extending on one ſide towards Mont Blanc, and on the other, towards the plain of Chamouny.

The names of the principal needles are, Aiguilles de Midi, de Dru, de Bouchard, de Moine, de Tacul, de Charmeaux; the five glaciers, that ſtretch towards the plain of Chamouny, and unite at the foot of Mont Blanc, are called Tacona, Boſſons, Montanvert, Argentiere, and Tour.

Having ſufficiently refreſhed ourſelves, we prepared for our adventure acroſs the ice. We had each of us a long pole ſpiked with iron; and, in order to ſecure us from ſlipping, the guides faſtened to our ſhoes *crampons*, or ſmall bars of iron, provided with four ſpikes. The difficulty in croſſing theſe valleys of ice ariſes from the immenſe chaſms, which our guides aſſured us in ſome places are not leſs than five hundred feet in depth. I can no otherwiſe convey to you an image of this body of ice, broken into irregular ridges and deep chaſms, than by comparing it to waves inſtantaneouſly frozen in the midſt of a violent ſtorm.

* In 1785, theſe *murailles de glace* no longer exiſted.

† Since my firſt expedition, Mr Blair, an Engliſh gentleman, has built a more commodious wooden hut, which, from him, is called Blair's Cabin.

We

We began our walk with great flowneſs and deliberation; but gradually gaining courage and confidence, we ſoon found that we could ſafely paſs along thoſe places, where the aſcent and deſcent were not very conſiderable, much faſter even than when walking at the rate of our common pace: in other parts we leaped over the clefts, and ſlid down the ſteeper declivities. In one place we were obliged to tread with peculiar caution. After walking ſome paces ſideways along a narrow ridge of ice, ſcarcely three inches broad, we ſtept acroſs a chaſm into a little hollow, which the guides formed for our feet, and aſcended by means of ſmall holes made with the ſpikes of our poles. This account appears terrible; but we had not the leaſt apprehenſion of danger, as the guides were exceedingly careful, and took excellent precautions. One of our ſervants had the courage to follow us without *crampons*, or nails in his ſhoes, which was certainly dangerous, on account of the ſlipperineſs of the leather when wetted.

We had now almoſt reached the oppoſite ſide, when we were obliged to make a circuit of above a quarter of a mile, in order to get round a broad chaſm. This will give you ſome idea of the difficulty attending excurſions over ſome of theſe glaciers: our guides informed us, that when they hunt chamois and marmots, theſe unavoidable circuits generally carry them ſix or ſeven miles, when the direct diſtance is ſcarcely two. A ſtorm threatening every moment, we were obliged to haſten off the glacier; for rain renders the ice exceedingly ſlippery, and in caſe of a fog, which generally accompanies a ſtorm in theſe upper regions, our ſituation would have been extremely dangerous. Indeed we had no time to loſe; for we had ſcarcely quitted the ice before the tempeſt began, and ſoon became very violent, attended with frequent flaſhes of lightning, and loud peals of thunder, which being re-echoed within the hollows of the mountains, added greatly to the awful ſublimity of the ſcene.

We crawled for a conſiderable way upon our hands and feet along a ſteep and bare rock, and down one of the moſt difficult and rugged precipices I ever deſcended in Switzerland; the thunder at the ſame time roaring over us, and the rain pouring down like torrents. After much difficulty, but without the leaſt accident, we gained the valley of Chamouny, and returned to the inn, as wet as if we had been plunged into water, but perfectly gratified with our expedition.

In my ſecond excurſion to the valley of Chamouny in 1785, inſtead of croſſing the glacier, I aſcended, in company with three Engliſhmen and a Swiſs gentleman, from Blair's Cabin, about an hour and a half, over the bare and rugged rocks, to a ſummit under the *Aiguille de Charmox*, near the ſpot from which a Genevan unfortunately fell and was daſhed to pieces. On this ſummit, at the very edge of the fearful precipice which overlooks the vale of Chamouny, ſtood a collection of ſtones, about three feet high, called by the natives *le bon homme*. We immediately raiſed this heap to the height of ſix feet, and piled up another of the ſame elevation, which we ſtyled, in the language of the country, *le monument de quatre Anglois*, in memory of the four* Engliſhmen who amuſed themſelves in forming it.

I employed an hour in aſcending part of the Montanvert on horſeback, the ſame time in walking up to Blair's Cabin, an hour and a half to the *monument de quatre Anglois*, half an hour in deſcending to Blair's Cabin, and three quarters of an hour in paſſing from thence to Chamouny.

* Mr. Whitbread, the two Mr. Cliffords, and myſelf. We were accompanied and aſſiſted by M. Exchaquet, a Swiſs gentleman, remarkable for his numerous expeditions into theſe Alps.

I made

I made this expedition in company with M. Exchaquet, a Swiss gentleman, native of Aubonne, and director-general of the mines of Savoy. His repeated expeditions into these regions have enabled him to execute a model in relief of the valley of Chamouny, Mont Blanc, the circumjacent Alps, and glaciers *. In order to render this model still more valuable to the naturalist, he collects specimens of the different stones which compose the mountains represented on the plan. He is now employed by the government of Bern in constructing a model of the district of Aigle.

M. Exchaquet has discovered a more commodious route than that hitherto followed, to ascend the Buet and Mount Breven, which are described by M. Van Berchem, secretary to the Society of Sciences at Lausanne, in his letter † to Mr. Wyttenbach of Bern, relating an expedition to the mines of Faucigny, and the glaciers which extend at the foot of Mont Blanc. In these letters the reader will find, beside much accurate and picturesque description, an account of several fossil and vegetable productions of the higher Alps.

LETTER XXXVIII.—*Excursion towards the Summit of the Couvercle.*

IN my subsequent expedition to the valley of Chamouny, I proposed pushing my course still further towards the glacier of Talefre, but particularly to the Couvercle, of which I had read a very curious description in Saussure's work. But having bruised my foot in ascending the Montanvert, I was prevented from executing my purpose. You will, however, have no reason to regret my disappointment, on receiving the following account of that expedition, extracted from notes communicated by a friend.

We quitted the Priory at six in the morning, accompanied by Michael Paccard and Marie Coutet, two guides of Chamouny, traversed the plain, and ascended the Montanvert through a wood of pines. We had fine views of the glacier which gives rise to the Arveron, and of the vale of Chamouny, chequered in a most singular manner with alternate rows of arable and pasture land. After continuing about an hour, we quitted our mules, proceeded on foot, and in an hour and a half reached Blair's Hut, on the top of the Montanvert, where we rested for a few minutes.

We then descended to the glacier, coasted it by the path of the chrystal hunters, and in about half an hour came to some difficult passes called *Les Ponts*, or the Bridges, which run over a perpendicular rock, at the edge of a frightful precipice. These passages, though still difficult, were extremely dangerous, until, by order of Saussure, the rock was in some parts blown away with gunpowder, and small holes formed for the hands and feet. The first bridge was about forty paces in length, and the two others somewhat less difficult, of about ten paces each. In a quarter of an hour we arrived at a fountain, which drops from the roof and sides of a natural grotto, the inside whereof is overgrown with large tufts of the *ranunculus glacialis*. Having walked about eight miles since our departure from Chamouny, we sat down in this sequestered grotto and made our first repast.

From hence we crossed some snow, the remains of the last winter's *avalanche*, and immediately got upon the *Moraine*, the term given to the stones and earth which the glaciers disgorge on each side, after having received them from the impending moun-

* This plan has been finished, and a coloured print of it published.

† Excursion dans les Mines de Haut Faucigny, &c. Lausanne, 1787.

tains: they are very treacherous and difficult to walk upon. The ice upon which these stones rest is harder than that of the rest of the glacier; and the earth is laid in such regular and equable heaps as to give the appearance of art. As we looked from hence over the valley of ice, the passage seemed impracticable; so numerous and broad were the chasms which intersected it in every direction, many bearing a tremendous appearance, and of an astonishing depth; but we soon found that it only required courage and activity. Instead of *crampons* we had large nails in our shoes, which more effectually answered our purpose, and our spiked sticks were on this occasion particularly serviceable. Having descended upon the glacier, we found the ice softened by a warm wind, which rendered it less slippery than usual. We continued along it about a quarter of an hour, then regained and walked along the Moraine near half an hour. We now embarked upon the great valley of ice called *Glacier des Bois*, I own not without emotion to see ourselves upon this extraordinary desert, broken into frightful chasms, through the maze of which we were to pass. It was curious to observe the numerous little rills produced by the collection of drops occasioned by the thawing of the ice on the upper part of the glacier: these little rills hollow out some channels, and torrent-like precipitate themselves into the chasms with a violent noise; increasing the body of waters formed by the melting of the interior surface, and finding an outlet under the immense arch of ice in the valley of Chamouny, from which the Arveron rushes. This ice-water was agreeable to the palate, and extremely refreshing from its coolness.

The field of ice, which at first sight seemed impervious to all but the chamois and marmot, and scarcely practicable even for the daring footsteps of man, is traversed by flocks of sheep, driven to the scanty pasturage which the opposite rocks afford. The shepherds leave them in these desolate spots, and visit them at different intervals. We observed their track over the ice, and saw a flock returning; one shepherd preceded as a guide, and another followed the herd: we had the good fortune to preserve a sheep which had strayed from the flock.

As we were continuing our course, we were surprised by a loud noise; and, looking round, perceived a large fragment of rock which had detached itself from one of the highest needles: it bounded from precipice to precipice with great rapidity, and, before it reached the bottom, was reduced almost entirely into dust. Having proceeded about an hour, we were astonished with a view far more magnificent than imagination can conceive: hitherto the glaciers had scarcely answered my expectations, but now far surpassed them. Nature clad herself in all her terrors. Before us was a valley of ice twenty miles in extent, bounded by a circular glacier of pure unbroken snow, called Tacu, which leads directly to the foot of Mont Blanc, and is surrounded by large conical rocks, terminating in sharp points like the turrets of an ancient fortification; to the right rose a range of magnificent peaks, their intervals filled with glaciers; and far above the rest, the majestic summit of Mont Blanc, his highest point obscured with clouds. He appeared of such immense magnitude, that at his presence the circumjacent mountains, however gigantic, seemed to shrink before him, and "*hide their diminished heads* *." In half an hour we arrived at the Moraine, which forms a boundary of the valley, crossed it, and proceeded upon a body of ice about three quarters of a mile broad. Here the ice was more even and free from chasms than in the great valley. We then passed a second Moraine, and beyond that another mass of ice to a third Moraine: de-

* Milton.

scending

ſcending from thence we came upon the laſt ridge of ice, conſiderably broader than the two former, and full of large chaſms: it is ſeparated from the rock only by a very narrow Moraine. Theſe Moraines contain great quantities of chryſtal.

Here we turned a little to the right, and aſcended the valley of ice, the ſcene every moment increaſing in magnificence and horror. In a ſhort time we arrived at the foot of the Couvercle, having walked about ſix miles on the ice. We now found it difficult to quit the ice, and the firſt part of the deſcent was really perilous. One ſtep was truly dreadful: a bulging rock entirely ſmooth, and preſenting a precipice of very conſiderable depth, which was terminated by an immenſe chaſm in the ice, ſeemed to forbid our progreſs; a ſmall hollow, however, in the middle ſerved for one foot, and from thence we bounded over to the firm ground. One guide went firſt, and held out his hand on the oppoſite ſide, whilſt the other helped and directed us where to place our feet. We continued aſcending a path which now ſeemed without danger, though very narrow and ſteep, and carried along the ridge of precipices. The ſcenery around was indeed ſo ſublime as to baniſh all ideas of fatigue and apprehenſion. Half an hour more brought us to the ſide of a fountain, where we ſat down to our dinner. We had now employed five hours and a half from Chamouny, and notwithſtanding all difficulties and neceſſary halts, had walked fifteen miles, but none of us complained of fatigue.

The clouds beginning to gather, warned us to haſten to the top of the Couvercle. From that ſtation we had the view of three ſtupendous vallies of ice, the glacier of Talefre to the left, in front that of l'Echaut, and the Tacu to the right; all uniting in one great valley of ice called the *Glacier des Bois*, which ſtretched under our feet, and was ſurrounded and ornamented by the rugged needles. The dead ſilence which reigned in this place was only interrupted by the bounding of diſtant chamois, and the cries of alarm which the marmots gave to their tribes at our approach.

Having refreſhed ourſelves we proceeded to the top of the Couvercle, a moſt extraordinary rock of granite, having the appearance of a large irregular multilateral building placed on a mountain; the aſcent was laborious, but perfectly ſecure. Towards its foot we found a bottle containing the names of two Engliſhmen who had reached that place about a fortnight before, and probably flattered themſelves that no ſtranger would go beyond them. We wrote our names on the reverſe of the paper, and carried the bottle with us to the ſummit of the Couvercle. Three quarters of an hour brought us to the point, and we reached a rock overhanging a precipice which my eyes dared not meaſure. In this ſituation we were ſurpriſed with a thunder ſtorm, which added great horror and magnificence to the ſcene. We took ſhelter under an impending rock, and liſtened to the roaring of the ſtorm with a mixed ſenſation of fear and pleaſure. On reflecting in this place that we were to meaſure back the ſame ground, and to undergo a repetition of the ſame difficulties, we were not exempted from alarm; but recollecting that it is the duty of man to encounter ſome dangers, in order to behold ſuch glorious ſcenes, we from that moment baniſhed all apprehenſions.

Our view from the top of the Couvercle comprehended the ſame ſublime ſcenes we had enjoyed from its baſe, but conſiderably heightened and enlarged; the ſtupendous extent of ice appeared like a rugged expanſe of frozen ſea, bounded by the moſt gigantic rocks, and terminated by Mont Blanc, the Atlas of the globe. Although we were thus entirely encloſed between ice and ſnow, and barren crags where all vegetation might be ſuppoſed to ceaſe; yet our eyes repoſed on a triangular rock, clothed with graſs and alpine plants, and ſtarting up like a fertile iſland in the midſt of a deſolate ocean. It is known by the name of the *Garden*, and exhibits a curious contraſt to the ſurrounding drearineſs.

During our expeditions into the Alps, we had frequently found occaſion to remark the peculiarly deep ſhade of the blue colour * in the "*pure Empyreal* †;" and to-day we were more particularly affected with this circumſtance. It conveyed a moſt ſublime idea of the infinity of ſpace: the higher we aſcended the more beautiful it ſeemed; and we were informed by a perſon accuſtomed to alpine ſcenes, that, on conſiderable elevations, he had frequently obſerved the ſtars at noon-day.

Our deſcent from theſe icy regions was no leſs fortunate than our aſcent; we reached the Priory at ſeven in the afternoon, without the leaſt accident, and wrapt in aſtoniſhment on the recollection of ſcenes which ſurpaſs the imagination, as much as they defy deſcription. I am, &c.

LETTER XXXIX.—*Various attempts to reach the Summit of Mont Blanc.—Succeſsful Expedition of James Balma and Dr. Paccard.—Of Sauſſure.—His phyſical Obſervations.*

VARIOUS attempts having been made to reach the ſummit of Mont Blanc, as well by the guides of Chamouny, as by Meſſrs. de Sauſſure and Bourrit; a chronological account of the principal expeditions which have at length terminated ſucceſsfully, will not, perhaps, be unintereſting.

The firſt was made by M. Couteran and three guides of Chamouny, Michael Paccard, Victor Tiſſay, and Marie Coutet. On the 13th of July 1776, they ſet off from the Priory, about eleven in the evening; paſſed between the glaciers of Boſſon and Tacona; and, after employing above fourteen hours in mounting rugged and dangerous aſcents, in croſſing ſeveral vallies of ice, and large plains of ſnow, found themſelves on the top next to Mont Blanc. At firſt ſight it appeared ſcarcely a league diſtant; but they ſoon diſcovered that the clearneſs of the air, the extraordinary whiteneſs of the ſnow, and its great height, made it ſeem nearer than it was in reality; and they perceived with regret, that it would require at leaſt four hours more to reach the ſummit, even ſuppoſing it practicable. But as the day was far advanced, and the vapours towards the ſummit of Mont Blanc began to gather into clouds, they were obliged to relinquiſh their enterprize. As they were returning in great haſte, one of the party ſlipped in attempting to leap over a chaſm of ice. He held in his hand a long pole ſpiked with iron, which he had ſtruck into the ice; and upon this he hung dreadfully ſuſpended for a few moments until he was releaſed by his companions. The danger he had juſt eſcaped made ſuch an impreſſion upon him that he fainted, and continued for ſome time in that ſituation: he was at length brought to himſelf, and, though conſiderably bruiſed, ſufficiently recovered to continue his journey. They arrived at Chamouny about eight in the evening, after a journey of two-and-twenty hours: as ſome ſort of recompence for ſo much fatigue they enjoyed the ſatisfaction, at leaſt, of having approached nearer to Mont Blanc than any former adventurers.

According to Sir George Schuckborough, the ſummit which they attained is more than 13,000 feet above the Mediterranean. Theſe perſons, however, did not take the neceſſary precautions for ſo perilous an enterprize; for the expedition was not only extremely hazardous, but alſo far too fatiguing and difficult to be accompliſhed within

* The depth of this blue colour is owing to the extreme purity and tranſparency of the air. Sauſſure made ſome curious experiments to aſcertain the exact ſhade of blue which forms the colour of the heavens in this elevated ſpot. By means of ſlips of paper ſtained with different tints of blue, from the paleſt to the darkeſt, he formed a ſcale of 51 ſhades, and found that the 39th was the colour of the heavens. Vol. iv. p. 158. † Milton.

twenty-

twenty-four hours. The failure of this expedition ſeemed for ſome time to repreſs all future attempts, until the indefatigable Bourrit infuſed a new ſpirit into the inhabitants of Chamouny. After reiterated though unſucceſsful attempts, on the 11th of September 1784, Bourrit, accompanied by ſix guides, departed from Bionaſay, and was *ſcaling*, as he expreſſes himſelf, the *rampart* of Mont Blanc, when he ſuddenly found himſelf ſo extremely affected by the intenſe cold, that he was unable to proceed.

Marie Coutet and Francis Guidet, two of the guides who attended him in this expedition, preceded their company, and aſcended to the Dome of Goutè, which is about 9400 feet in a horizontal direction from the ſummit. Marie Coutet informed me, that they paſſed the Middle Dome, and walked along the ridge between that dome and the ſummit at far as ſome high rocks, which appear from the vale of Chamouny like ſmall points riſing out of the ſnow, but night approaching obliged them to return.

On the 4th of September 1785 Marie Coutet and James Balma reached a place under a rock at a conſiderable elevation, where they paſſed the night. Setting off before ſunriſe, they found themſelves about ſeven on the Dome of Goutè, and were proceeding towards the ſummit with a fair proſpect of ſucceſs, when a violent ſtorm of hail accompanied with a ſtrong wind compelled them to return.

On the 13th of September Meſſrs. de Sauſſure and Bourrit, attended by twelve guides well provided with barometers, thermometers, and other inſtruments, for the purpoſe of making the neceſſary obſervations, departed from Bionaſay, and arrived at a hut, which they had ordered to be conſtructed at *Pierre Ronde* 7808 feet above the level of the ſea. Here they paſſed the night, and early the next morning reached the Dome of Goutè without the leaſt accident, and without much difficulty; where they were ſtopped by a freſh fall of ſnow, into which they ſunk ſo deep that all farther progreſs was impracticable. Sauſſure informs us, that the mercury in the barometer ſunk eighteen inches and a half, and that he reached an elevation of 1290 toiſes, or 8256 Engliſh feet.

At length, in July 1786, ſix guides of Chamouny having failed in another attempt, James Balma, one of the party, being overtaken by darkneſs, as he was rambling upon the ice, miſſed his way, and paſſed the night in a ſpot above the Dome of Goutè, elevated more than 12,000 feet above the level of the ſea. His youth, and the ſtrength of his conſtitution, having preſerved him from the effects of the nocturnal cold in ſo ſevere an atmoſphere, at the approach of morn he reconnoitred the ſituation, and obſerved a part which appeared more eaſy of acceſs than any hitherto attempted. On his arrival at Chamouny he was ſeized with a very ſevere indiſpoſition, the effect of extreme fatigue, and of the intenſe cold. Being attended by Dr. Paccard, a phyſician of the place, James Balma communicated his obſervations; and, in gratitude for his attendance, offered to conduct him to the ſummit of Mont Blanc.

On the 7th of Auguſt theſe two daring adventurers ſallied from Chamouny upon this memorable expedition, and reached before dark the mountain *La Côte*, which overhangs the upper part of the glacier of Boſſon. Here they continued during the night; and at three in the morning purſued their route over the ice, aſcended the Dome of Goutè, paſſed under the Middle Dome, and at the laſt pyramid of rock turned to the eaſt, and continued along the ridge, which is ſeen from Geneva, and lies on the left of the ſummit. Here they firſt began to experience ſuch intenſe cold, and ſuch extreme fatigue, that Dr. Paccard was almoſt induced to relinquiſh the enterprize; being, however, encouraged by James Balma, more accuſtomed to ſuch dangerous expeditions, he followed his companion. The wind was ſo violent and piercing, that in order to avoid its blowing in their faces, they were obliged to walk ſideways for a conſiderable time. About

ſix in the afternoon, they at length attained the ſummit of Mont Blanc, and ſtood triumphantly on a ſpot of ground, which no one had reached before, and at the elevation of 15,662 feet above the ſea, which is undoubtedly the higheſt point in the ancient world. They remained on the ſummit no more than half an hour, the cold being ſo intenſe, that the proviſion was frozen in their pockets, the ink congealed in their ink-horns, and the mercury in Fahrenheit's thermometer ſunk to 18½ degrees. Doctor Paccard had juſt time to obſerve the ſtate of the barometer, which he has not communicated to the public.

They employed fifteen hours in aſcending; and though they again reached the mountain of La Côte in five hours, found great difficulty in deſcending, their ſight being debilitated by the reflection from the ſnow. They arrived at La Côte about midnight, after twenty-four hours unremitted fatigue. Having repoſed themſelves two hours, they again ſallied forth, and returned to Chamouny at eight in the morning. Their faces were excoriated, and their lips exceedingly ſwelled; Dr. Paccard was almoſt blind, and his eyes continued to be affected for a conſiderable time.

We cannot expect any accurate experiments from theſe two perſons, to whom the glory of firſt aſcending the ſummit of Mont Blanc is undoubtedly due. But they prepared the way for the obſervations and diſcoveries of future naturaliſts, and particularly of Sauſſure, whoſe indefatigable zeal did not permit him to reſt, until he had reached the top of Mont Blanc, and made thoſe experiments which cannot fail greatly to elucidate the theory of the atmoſphere.

That able naturaliſt ſet out on this ſucceſsful expedition, from the valley of Chamouny on the 13th of Auguſt 1787. He was accompanied by eighteen guides, who carried a tent, matraſſes, all neceſſary accommodations, and inſtruments of experimental philoſophy. They paſſed the firſt night on the top of the mountain of La Côte, in a hut previouſly conſtructed for that purpoſe. At four o'clock in the following afternoon they reached an elevation of 9312 feet above the Priory, or 12,762 above the level of the ſea. Here they encamped, and formed a excavation in the congealed ſnow, which they covered with a tent. In this icy habitation, inſtead of ſuffering from the cold, Sauſſure felt ſuch a ſuffocating heat, from the cloſeneſs of the tent, and the number of perſons crowded in a ſmall compaſs, that he was frequently obliged to go into the open air in order to breathe.

The next morning the whole company departed at ſeven, and found the aſcent in ſome places ſo ſteep, that the guides were obliged to hew out ſteps with a hatchet. At eleven they reached the ſummit of Mont Blanc. Here they continued four hours and a half, during which time Sauſſure enjoyed, with rapture and aſtoniſhment, a view the moſt extenſive as well as the moſt rugged and ſublime in nature; and made thoſe obſervations which render this expedition no longer a matter of mere curioſity. You will, perhaps, not be diſpleaſed with the following particulars ſelected from a complete and ample detail of thoſe obſervations communicated to the public by Sauſſure in the fourth volume of his *Voyages dans les Alpes* *.

He did not find the cold ſo extremely piercing as Dr. Paccard and James Balma. By comparing his experiments on Mont Blanc with thoſe made at the ſame time by M. Senebier at Geneva, he was enabled to give the following obſervations. Reaumur's thermometer ſtood in the ſhade at $2\frac{3}{10}$ below freezing point, or 27 of Fahrenheit; at Geneva,

* A tranſlation of this account, by the Rev. Mr. Martyn, profeſſor of botany in the univerſity of Cambridge, printed by Kearſley, forms an Appendix to his Sketch of a Tour through Switzerland; which I would recommend to the traveller.

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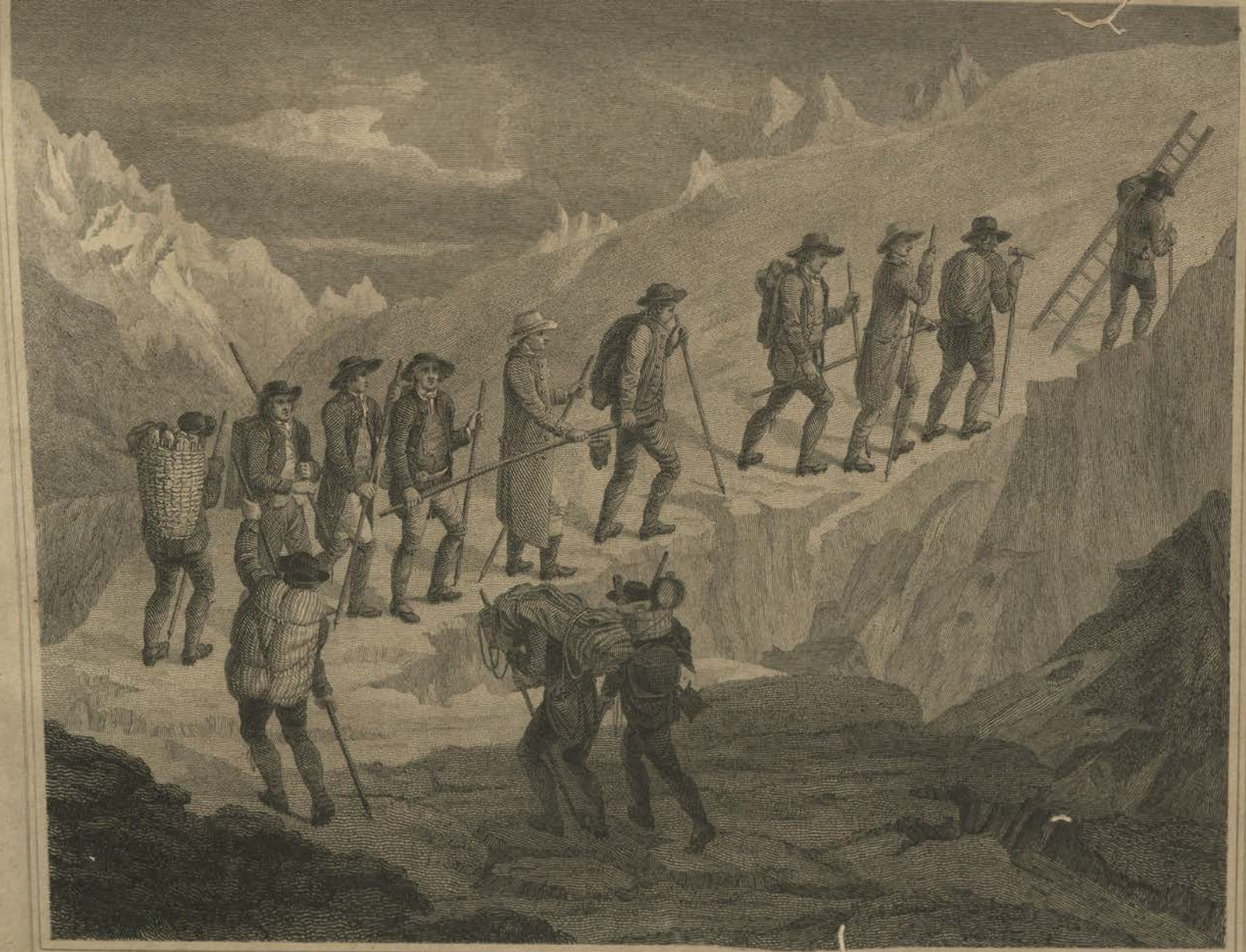

at 22. 6, or 82 of Fahrenheit, which gives a difference of near 25 degrees of Reaumur, or 45 of Fahrenheit, between the ſtate of the atmoſphere at both places. De Luc's barometer fell to 16. $0\frac{144}{166}$, and as it ſtood at Geneva at 27. $2\frac{108}{166}$, it gives a difference of 11. 2, without regarding the fraction. On eſtimating the height of Mont Blanc from barometrical experiments, he found it almoſt exactly correſpond with that given by Sir George Shuckborough, or 15,662 Engliſh feet above the level of the ſea, which reflects high honour on the accuracy of the Engliſh obſerver.

By experiments with the hygrometer, the air on the top of Mont Blanc contained ſix times leſs humidity than that of Geneva; and to this extreme dryneſs of the atmoſphere he imputes the burning thirſt which he and his companions experienced. It requires half an hour to boil water on the top of Mont Blanc, fifteen or ſixteen minutes are ſufficient at Geneva, and fourteen or fifteen by the ſea-ſide. By experiments on the electrometer, the balls diverged only three lines; the electricity was poſitive. On the ſummit he noticed two butterflies on the wing; obſerved, at the elevation of 11,392 feet above the ſea, the *Silene Acaulis*, or moſs campion, in flower; and ſtill higher, on the moſt elevated rocks, the *Lichen Sulphureus* and *Lichen Rupeſtris* of Hoffman. The ſummits of Mont Blanc, he adds, and the adjacent mountains, are compoſed of granite; and next to Mont Blanc, the Schreckhorn and Mount Roſa* in Piedmont, appeared the moſt elevated points.

Sauſſure, as well as many of his party, found themſelves extremely affected by the rarefaction† of the air; and at two began returning. They deſcended a little lower than the place in which they paſſed the preceding night, arrived the next morning at the valley of Chamouny without the leſt accident, and as they had taken the precaution to wear veils of crape, their faces were not excoriated, nor their ſight debilitated.

On the eighth of Auguſt, a few days after Sauſſure's expedition, Mr. Beaufoy, an Engliſh gentleman, ſucceeded in a ſimilar attempt, though it was attended with greater difficulty, ariſing from the enlargement of the chaſms in the ice. An account of this expedition was read before the Royal Society on the 13th of December 1787, and will probably be communicated to the public.

* Sauſſure afterwards meaſured the height of Mont Roſa, and found its elevation above the ſea 2430 toiſes, which is only 50 French toiſes or 320 feet lower than Mont Blanc. Voyages dans les Alpes, tom. iv. p. 349.

† Some perſons have attributed the difficulty of reſpiration to fatigue, and not the rarefaction of the air; but Sauſſure has fully diſproved this opinion. The whole paſſage is ſo curious, that I will inſert the original words:—

"Mais de tous nos organes, celui qui eſt le plus affecté par la rareté de l'air, c'eſt celui de la reſpiration. On ſait que pour entretenir la vie, ſur tout celle des animaux à ſang chaud, il faut qu'une quantité determinée d'air traverſe leurs poumons dans un tems donné. Si donc l'air qu'ils reſpirent eſt le double plus rare, il faudra que leurs inſpirations ſoient le double plus fréquentes, afin que la rareté ſoit compenſée par le volume. C'eſt cette accélération forcée de la reſpiration qui eſt la cauſe de la fatigue et des angoiſſes que l'on éprouve à ces grandes hauteurs. Car en même tems que la reſpiration s'accélere, la circulation s'accélere auſſi. Je m'en ſuis ſouvent apperçu ſur de hautes cimes, mais je voulois en faire une épreuve exacte ſur le Mont Blanc; et pour que l'accélération du mouvement du voyage ne pût pas ſe confondre avec celle de la rareté de l'air, je ne fis mon épreuve qu'aprés que nous fûmes reſtés tranquilles, où à peu près tranquilles pendant 4 heurs ſur la cime de la montagne. Alors le pouls de Pierre Balmat ſe trouva battre 68 pulſations par minute; celui de Têtu, mon domeſtique, 112, et le mien 100. A Chamouni, également après le repos, les mêmes, dans le même ordre, battirent 49. 60. 72. Nous etions donc tous là dans un etat de fievre qui explique, et la ſoif qui nous tourmentoit, et nôtre averſion pour le vin, pour les liqueurs fortes, et même pour tout eſpece d'aliment. Il n'y avoit que l'eau fraîche qui fit du bien et du plaiſir." Tom. iv. p. 207.

LETTER

LETTER XL.—*Conjectures on the Formation and State of the Glaciers.*

NO ſubject in natural hiſtory is more curious than the origin of theſe glaciers, extending into fields of corn and paſture, and lying, without being melted, in a ſituation where the ſun is ſufficiently powerful to bring vegetation to maturity: for it is almoſt literally true, that with one hand I could touch ice, and the other ripe corn. As in my firſt expedition to the Alps my ſtay was exceedingly ſhort, I declined entering upon a ſubject too important to be ſuperficially treated, and only threw together a few haſty remarks, which occurred to me on the ſpot. But I find that theſe remarks, however haſty and ſuperficial, ſerved to excite your curioſity, and have induced you to inquire, "*Which is the moſt rational ſyſtem concerning the formation of the glaciers? Are they in a ſtate of augmentation or diminution; or do they remain within the ſame limits?*"

Although in ſubſequent journeys to the Alps I made this ſubject a particular object of reſearch, and although I attentively peruſed the principal ſyſtems concerning the formation of glaciers, yet I do not, without great diffidence, preſume to reply to your very difficult queſtions.

The theory of Gruner, confirmed and amended by that able naturaliſt Sauſſure, appears the moſt ſimple and rational; and I do not know how I can better ſatisfy your curioſity, than by forming an extract from his much eſteemed work *, interſperſing it with a few additional remarks drawn from my own particular obſervations.

If a perſon could be conveyed to ſuch an elevation as to embrace at one view the alps of Switzerland, Savoy, and Dauphiné, he would behold a vaſt chaos of mountains, interſected by numerous vallies, and compoſed of many parallel chains, the higheſt occupying the centre, and the others gradually diminiſhing in proportion to their diſtance.

The moſt elevated, or central chain, would appear briſtled with pointed rocks, and covered, even in ſummer, with ice and ſnow, in all parts not perpendicular. On each ſide of this chain he would diſcover deep vallies clothed with verdure, peopled with numerous villages, and watered by many rivers. In conſidering theſe objects with greater attention, he would remark, that the central chain is compoſed of elevated peaks and diverging ridges, whoſe ſummits are overſpread with ſnow; that the declivities of the peaks and ridges, excepting thoſe parts that are extremely ſteep, are covered with ſnow and ice, and that the intermediate depths and ſpaces between are filled with immenſe fields of ice, terminating in thoſe cultivated vallies which border the great chain.

The branches moſt contiguous to the central chain would preſent the ſame phenomena, only in a leſſer degree. At greater diſtances no ice would be obſerved, and ſcarcely any ſnow, but upon ſome of the moſt elevated ſummits; and the mountains diminiſhing in height and ruggedneſs, would appear covered with herbage, and gradually ſink into hills and plains.

In this general ſurvey, the glaciers may be divided into two ſorts; the firſt occupying the deep vallies ſituated in the boſom of the Alps, and termed by the natives *Vallées de Glace*, but which I ſhall diſtinguiſh by the name of *Lower Glaciers*; the ſecond, which clothe the ſummits and the ſides of the mountains, I ſhall call *Upper Glaciers*.

1. The Lower Glaciers are by far the moſt conſiderable in extent and depth. Some ſtretch ſeveral leagues; that of des Bois in particular is more than fifteen miles long, and above three in its greateſt breadth.

* Voyages des Alpes, v. i. c. 7.

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The Lower Glaciers do not, as is generally imagined, communicate with each other; and but few of them are parallel to the central chain: they moſtly ſtretch in a tranſverſe direction, are bordered at the higher extremity by inacceſſible rocks, and on the other extend into the cultivated vallies. The thickneſs of the ice varies in different parts. Sauſſure found its general depth in the glacier des Bois from eighty to a hundred feet; but queſtions not the information of thoſe who aſſert, that in ſome places its thickneſs exceeds even ſix hundred feet.

Theſe immenſe fields of ice uſually reſt on an inclined plane; being puſhed forwards by the preſſure of their own weight, and but weakly ſupported by the rugged rocks beneath, are interſected by large tranſverſe chaſms, and preſent the appearance of walls, pyramids, and other fantaſtic ſhapes, obſerved at all heights and in all ſituations, wherever the declivity exceeds thirty or forty degrees. But in thoſe parts, where the plane on which they reſt is horizontal, or gently inclined, the ſurface of the ice is nearly uniform; the chaſms are but few and narrow, and the traveller croſſes on foot, without much difficulty.

The ſurface of the ice is not ſo ſlippery as that of frozen ponds or rivers: it is rough and granulated, and only dangerous to the paſſenger in ſteep deſcents. It is not tranſparent, is extremely porous and full of ſmall bubbles, which ſeldom exceed the ſize of a pea, and conſequently is not ſo compact as common ice: its perfect reſemblance to the congelation of ſnow impregnated with water, in opacity, roughneſs, and in the number and ſmallneſs of the air-bubbles, led Sauſſure to conceive the following ſimple and natural theory concerning the formation of the Glaciers.

An immenſe quantity of ſnow continually accumulates in the elevated vallies encloſed within the alps, as well from that which falls from the clouds during nine months in the year, as from the maſſes inceſſantly rolling from the ſteep ſides of the circumjacent mountains. Part of this ſnow, not diſſolved during ſummer, impregnated with rain and ſnow-water, is frozen during winter, and forms that opaque and porous ice of which the Lower Glaciers are compoſed.

2. The Upper Glaciers may be ſubdivided into thoſe which cover the ſummits, and thoſe which extend along the ſides of the alps.

Thoſe which cover the ſummits owe their origin to the ſnow that falls at all ſeaſons of the year, and which remains nearly in its original ſtate, being congealed into a hard ſubſtance, and not converted into ice. For although, according to the opinion of ſome philoſophers, the ſummit of Mont Blanc, and of other elevated mountains, is, from the gliſtening of the ſurface, covered with pure ice, yet both theory and experience prove it to be ſnow. For in ſo elevated and cold a region, a ſufficient quantity of ſnow cannot be melted to impregnate with water the whole maſs, which remains undiſſolved. Experience alſo juſtifies this reaſoning. Sauſſure found the top of Mont Blanc only encruſted with ice, which, though of a firm conſiſtence, was yet penetrable with a ſtick; and on the declivities of the ſummit he diſcovered, beneath the ſurface, a ſoft ſnow without coheſion.

The ſubſtance which clothes the ſides of the alps is neither pure ſnow like that of the ſummits, nor ice which forms the Lower Glaciers, but an aſſemblage of both. It contains leſs ſnow than the ſummits, becauſe the ſummer heat has more power to diſſolve it, and becauſe the liquefied ſnow deſcending from above, the maſs abſorbs a larger quantity of water. It contains more ſnow than the Lower Glaciers, becauſe the diſſolution of the ſnow is comparatively leſs. Hence the ice is even more porous, opaque, leſs compact than that of the Lower Glaciers, and of ſo doubtful a texture as

renders it, in many parts, difficult to decide, whether it may be called ice or frozen ſnow.

In a word, there is a regular gradation from the ſnow on the ſummits to the ice of the Lower Glaciers, formed by the intermediate mixture which becomes more compact and leſs porous in proportion as it approaches the Lower Glaciers, until it unites and aſſimilates with them. And it is evident, that the greater or leſſer degree of denſity is derived from the greater or leſſer quantity of water, with which the maſs is impregnated.

In regard to your ſecond queſtion, "*Whether the glaciers are in a ſtate of increaſe or diminution*," though I declined on a former occaſion entering minutely upon a ſubject, which required accurate reſearch and experimental inveſtigation, yet I ventured to make one remark, which ſeemed to prove the occaſional increaſe and diminution of the glaciers, contrary to the opinion of ſome philoſophers, who aſſert, that they remain always the ſame, and of others, that they are continually increaſing.

The borders of the glacier of Montanvert are moſtly ſkirted with trees: towards its baſe a vaſt arch of ice riſes near a hundred feet in height, under which the Arveron ruſhes in a large body of water. As we approached the ice we paſſed through a wood of firs: thoſe trees which ſtand at a little diſtance from the arch are about eighty feet high, and undoubtedly of a very great age. Between theſe and the glacier, the trees are of a later growth, as is evident from their texture and inferior ſize. Others, ſtill ſmaller have been overturned and enveloped by the ice: there ſeems to be a kind of regular gradation in the age of theſe trees, from the largeſt which are ſtanding to the ſmalleſt that lie proſtrate.

Theſe facts juſtly lead to the following concluſions: the glacier once extended as far as the row of tall firs; upon its gradual diſſolution, a number of trees ſhot up in the very ſpots which it formerly occupied; ſince that period, the ice has again advanced, and has overturned the trees of later growth, before they had attained any conſiderable height. Large ſtones of granite are uſually found at a ſmall diſtance from the extremities of the glacier: they have certainly fallen from the mountains upon the ice, have been carried on in its progreſs, and left on the plain upon the diſſolution or ſinking of the ice which ſupported them. Theſe ſtones, which the inhabitants call *Moraine*, from a kind of border towards the foot of the valley of ice, have been puſhed forward by the advance of the glacier, and extend even to the place occupied by the larger pines.

As ſeveral writers upon Switzerland have, in contradiction to theſe facts, endeavoured to prove, that the ſnow and ice are continually accumulating in the alps, I ſhall add a few remarks, that may tend to confirm the contrary opinion.

In 1785 the Inferior Glacier of Grindelwald was diminiſhed at leaſt four hundred yards ſince 1776; in the valley of Chamouny, the *Murailles de Glace*, which I deſcribed as forming the border of the glacier of Boſſon, no longer exiſted, and young trees had ſhot up in the parts which were then covered by the glacier of Montanvert.

The advocates for the increaſe of the glaciers, admit theſe facts, yet deny that any judgment can be formed concerning the ſtate of the more elevated regions, from what paſſes in the vallies, where the ſun has power to bring the fruits of the earth to maturity. It appears, they aſſert, both from theory and fact, that more ſnow falls, and more ice is annually formed in the alps than can be annually diſſolved. To judge from theory; they argue, that the cold occaſioned by the maſs of ice already formed ought to augment it ſtill further; and in regard to experience, it is evident, that within the memory of the preſent generation, many mountains have been covered, many paſtures and habitations invaded, and many paſſages irrecoverably obſtructed by the ice.

But in conſidering the arguments drawn from theory, we may obſerve, that the cauſes which tend to the diminution of the ice, are no leſs powerful than the augmentation of the cold, which is ſuppoſed to occaſion its indefinite increaſe. Theſe cauſes are principally, 1. rain and fleet in the leſs elevated regions; 2. evaporation; 3. deſcent of the ſnow and ice, both precipitous and gradual; 4. heat of the atmoſphere; 5. mean temperature of the earth.

1. The rain and fleet, which fall during ſummer upon the Lower Glaciers, not only thaw the ice, but increaſe the rills that collect on the ſurface, excavate channels, deſcend into the clefts, and aſſiſt in forming or enlarging the chaſms.

2. Evaporation is a ſtill more powerful cauſe; as it acts at all heights, and in all ſeaſons.

3. The deſcent of the ſnow and ice, as diſtinguiſhed by precipitous and gradual. The *avalanches*, or precipitous fallings of congealed ſnow, are detached either by their own weight, ſoftened from their hold by the heat of the ſun, the warm air which blows from the ſouth, or overthrown by the violent hurricanes extremely common in the upper alps. When theſe maſſes are precipated into a milder region, though they may ſometimes reſiſt the influence of heat, and form vallies of ice, yet they are uſually diſſolved. Theſe *avalanches* are moſt common in the Upper Glaciers: whereas the gradual deſcent of the ice is chiefly confined to the Lower Glaciers, and greatly contributes to leſſen the aggregate maſs.

All the Lower Glaciers, or vallies of ice, reſt on an inclined plane, are arched, and undermined by the torrents, which are conſtantly flowing, as well from the Upper Glaciers, as from their own interior ſurface. The natural tendency of a heavy body in ſuch a poſition is to deſcend, and the progreſſive motion is accelerated in proportion to its weight, and the greater inclination of its baſe. This progreſſive motion, which acts, though imperceptibly, yet gradually and uniformly, carries the ice into thoſe cultivated plains and vallies, where the ſun ripens the fruits of the field; and where a period is put to its farther increaſe.

If you require a proof of this imperceptible deſcent, the anſwer is obvious. It is to be collected from the facts which I have already enumerated, namely from the trees which are occaſionally overturned by the ice in its progreſs, and by the moraine of ſtones at the bottom of the Lower Glaciers. Theſe ſtones being ſimilar to the mountains of the upper alps, and eſſentially different from the rocks below, muſt have been conveyed by the ice in its deſcent from the Upper Glaciers.

4. The heat of the atmoſphere, or the effect of the ſun's rays on the outward ſurface of the glaciers, is too evident to require any proof, even to thoſe who have never been in the alps. Another cauſe of a thaw, occaſioned by the heat of the atmoſphere, which will not be ſuſpected by thoſe who have not viſited theſe icy regions, is derived from the warm winds which blow by night as well as by day in the Upper no leſs than in the Lower Glaciers. Theſe warm winds are, during ſummer, ſo common in theſe parts, that I never croſſed a glacier without feeling, in ſome particular poſitions, a warmth ſimilar to the air of a hot bath.

5. But as theſe two laſt cauſes only opperate in ſummer, and the ſolar rays do not produce ſufficient effect in the higheſt parts, we muſt have recourſe to the mean temperature of the earth, which ſeems to be the greateſt and moſt powerful agent in preventing an indefinite augmentation of ice and ſnow. This mean temperature, termed by ſome philoſophers the internal * heat of the earth, is always above the freezing point, as

* Some philoſophers impute this conſtant thaw, which takes place in the lower ſurface of the glaciers, to an internal ſource of heat in the earth; but that opinion has been very ably refuted by ſeveral modern naturaliſts;

as is evident from the heat of the ſprings which iſſue from the bowels of the earth. In winter, therefore, or in thoſe high regions of the globe where the cold is uſually below the freezing point, any ſpot of ground covered with only a thin coat of ſnow, may be ſo far cooled, to a certain depth, by the influence of the external air, as not to be capable of diſſolving any part of the ſuperincumbent ſnow. But when the maſs of ſnow is of ſuch a thickneſs as to protect the ſurface of the ground from the effects of the atmoſpherical cold, the mean temperature, which is always above the freezing point, will be ſufficient to melt the contiguous ſtratum of ſnow, and to occaſion a conſtant thaw, which ſupplies thoſe currents of water that flow, at all ſeaſons, from the Upper and Lower Glaciers.

In regard to the argument derived from experience, it is ſufficient to obſerve, that while I admit the facts which prove the progreſs of the ice, it by no means ſeems to follow that its maſs is perpetually increaſing. For the advocates of this opinion, while they ſcrupulouſly enumerate the places which have been invaded by the ice, do not take any notice of thoſe parts, no leſs numerous, from which the ice has receded.

During my ſecond expedition into the Alps, I alſo made this point of controverſy a particular object of my reſearch; and on enquiring from the *chaſſeurs* and other perſons who frequent the mountains, the greater part were of opinion that the collection of ice and ſnow, even in the elevated regions, was by no means in a continual ſtate of augmentation; but that while it gained in ſome places, it diminiſhed in others, and that upon an average, the aggregate quantity was nearly the ſame.

LETTER XLI.—*Account of the Bouquetin, or Mountain-Goat.*

I OBSERVED, at Michael Paccard's, a guide of Chamouny, a head and horns of the male *bouquetin*, or mountain-goat, and ſtuffed ſpecimens of a female and a young one.

As this animal is extremely rare, and inhabits the higheſt and almoſt inacceſſible mountains, the deſcriptions of it have been inaccurate and confuſed. But a new light has been lately thrown on the ſubject by Dr. Girtanner of St. Gallen, and by M. Van Berchem, ſecretary to the Society of Sciences at Lauſanne; and although theſe two naturaliſts differ in ſome inſtances, yet their joint labours have aſſiſted in aſcertaining the nature and economy of this curious animal. The following account of the bouquetin is drawn principly from their obſervations in Rozier's Journal, and from additional information obligingly communicated by M. Van Berchem.

The elder naturaliſts ſpeak of the bouquetin as of an animal well known, and in their time by no means uncommon on the high alps of Switzerland, eſpecially in the canton of Glarus and in the country of the Griſons. On the town hall of Glarus, there is ſtill a pair of horns of an extraordinary length, belonging to an animal of this ſpecies, formerly killed in the canton. Theſe horns are probably the ſame which Ray ſaw in the laſt century, when the natives informed him, that the breed was there extinct.

That this animal was found among the Griſons, appears from a letter in the poſſeſſion of M. de Salis Seervis, dated the fourteenth of October 1574, in which the Arch-

naturaliſts; the mean temperature of the ground being found ſufficient to account for *all* the phenomena, (local circumſtances excepted,) which have been uſually aſſigned to an internal heat of the earth.

duke

duke Ferdinand of Auſtria requires from his bailif of Caſtels, in the Pretigau, two bouquetins; adding, that he had received ſeveral from his predeceſſors. About forty years after the date of this letter the animal became rare; for a decree in the year 1612 prohibits the chace of the bouquetin under a fine of fifty crowns, and that of the chamois from New Year's Day to St. John, under the penalty of ten crowns. Sprecher in his *Pallas Rhetica*, publiſhed in 1617, relates that the chace of the bouquetin was not uncommon in his time, in the vallies of Pregallia, Vals, and Upper Engadina. Another law of 1633, confirmed in the following year, inflicts corporal puniſhment on thoſe who kill a bouquetin. But theſe ſeverities could not preſerve the breed; and probably this was the epoch of their deſtruction, when the fear of their being extinct prompted government to forbid the chace *. It is certain, that within the memory of the preſent generation, no bouquetins have been found in a wild ſtate in the country of the Griſons.

Theſe animals now inhabit that chain which ſtretches from Dauphiné through Savoy to the confines of Italy, and principally on the alps bordering on Mont Blanc, which is the moſt elevated part. They haunt the valley of Cormayor to the ſouth of Mont Blanc, the heights between Mont Blanc and the frontiers of the Vallais, and the mountains bordering Val Savarenche; but are found more abundantly in the mountains of the valley of Cogne, and almoſt always frequent places which have a ſouthern aſpect.

The ſeveral names by which the bouquetin is known in different languages, are, in Greek, by Homer and Ælian, Αιξ αγριος †; Latin, *Ibex*; Italian, *Capra Selvatica*; German and Swiſs, *Steinboch*, or Rock-goat, the female, *Etagne*, or *Ybſchen* and *Ybſchgeiſs*, perhaps from the Latin Ibex; Flemiſh, *Wildgheit*; French, *Bouquetin*, antiently *Bouc-eſtain*, the German name reverſed. Belon named it *Hircus ferus*; Briſſon, *Hircus Ibex*; Linnæus, *Capra Ibex*; Pennant, the *Ibex*; Dr. Girtanner, *Capra Alpina*. I have adopted the name of bouquetin, becauſe it is the provincial appellation of the animal in the Alps.

The ſyſtematic naturaliſts agree in taking the ſpecific character of the bouquetin from the beard, and the horns, which they deſcribe as knobbed along the upper or anterior ſurface, and reclining towards the back.

The male bouquetin, though larger, much reſembles the tame goat. The head is ſmall in proportion to the body, with the muzzle thick, compreſſed, and a little arched; the eyes are large, round, and have much fire and brilliancy. The horns large when of a full ſize weighing ſometimes 16 or 18 pounds, flatted before and rounded behind, with one or two longitudinal and many tranſverſe ridges, which degenerate towards the tip into knobs; the colour duſky brown. The beard long, tawny, or duſky; the legs ſlender, with the hoofs ſhort, hollow on the inſide, and on the outſide terminated by a ſalient border, like thoſe of the chamois. The body ſhort, thick, and ſtrong. The tail ſhort, naked underneath, the reſt covered with long hairs, white at the baſe and ſides, black above and at the end; ſpace under the tail in ſome tawny, in others white.

* Franciſcus Niger, in his deſcription of the Griſons, quoted by Conrad Geſner, ſays, that they ſpare this animal in hunting, becauſe it is the armorial bearing of the country.

> "*Parcitur hic Capricorne tamen tibi, Panos amice,*
> "*Arma quod exornes, et pulchra inſignia geris,*
> "*Hinc longam hinc vitam vivens, ingentia jactas*
> "*Cornua, perpue plicas rugoſa, repandaque in armos,*
> "*Formoſuſque nigris villis in montibus erras.*"

† Moſt naturaliſts affirm that Homer calls this animal Αιξ ιξαλος, whereas he ſtyles it Αιξ αγριος, or the wild-goat, adding the epithet ιξαλος, or wanton. Iliad Δ, v. 105.

The coat long, but not pendent, aſh-coloured, mixed with ſome hoary hairs: a black liſt runs along the back, and there is a black ſpot above and below the knees. The colour, however, like that of all other animals, varies according to its age and local circumſtances.

The female has been little noticed among naturaliſts. She is one-third leſs than the male, and not ſo corpulent; her colour leſs tawny; her horns ſmall, and not above eight inches long; ſhe has two teats, like the tame ſhe-goat, and never any beard, unleſs, perhaps, in an advanced age. The young ones are of a dirty grey colour, and the liſt along the back is ſcarcely diſcernible. The female ſhews much attachment to her young, and even defends it againſt eagles, wolves, and other enemies; ſhe takes refuge in ſome cavern, and preſenting her head at the entrance of the hole, thus oppoſes the enemy.

From a ſtuffed ſpecimen of the male bouquetin in Parkinſon's, late Sir Aſhton Lever's, Muſeum, I have given ſome of the principal dimenſions, as they are not to be found in any author that has fallen under my obſervation, except in Buffon's Hiſtoire Naturelle; and thoſe were taken by Daubenton from a young ſubject.

	Feet.	Inches.
Length of the head from the lower jaw to the ſpace between the horns	0	$9\frac{1}{2}$
Length from the root of the horns to the baſe or origin of the tail -	4	4
Height at the ſhoulder before - - - -	2	$5\frac{3}{4}$
Height at the ſhoulder behind - - - -	2	$7\frac{1}{2}$
Circumference of the body next to the fore legs - -	3	6
Circumference next the hind legs - - - -	2	2
Circumference in the middle - - - -	3	8
Circumference of the neck, cloſe to the ſhoulders - -	2	$3\frac{1}{2}$
——————— between the ears and the horns -	1	4

The horns being ſo remarkable a part of this animal, I ſhall add the meaſurement, not only of thoſe belonging to Mr. Parkinſon, but of four others, which are depoſited in the Britiſh Muſeum. Thoſe in the ſecond and third columns certainly belong to the bouquetin of the Alps; their colour is a duſky brown; the firſt of theſe is very flat before, the ſecond not ſo flat; neither the longitudinal or tranſverſe ridges are ſtrongly marked; theſe are evidently the horns of a very old animal. The horns in the fourth column belong alſo to the bouquetin, but probably from ſome other country. Their colour is black; they are much flatter on the ſides, and narrower before than the others, the longitudinal ridge is very ſtrongly marked, and the tranſverſe ridges ſtronger and more numerous. I cannot obſerve more than one * longitudinal ridge in any of the horns which I have examined, the exterior part of the front being univerſally rounded off, and the tranſverſe ridges running very little into the ſides. The horns in the fifth column belong unqueſtionably to the Ægagrus of Pallas, which is not improbably a variety of the bouquetin. Two fine pairs of theſe horns were given to the Muſeum by the late Duke of Northumberland. They have no anterior flat face, but a ſharp ridge, with a few knobs in front, about nine in number, and very diſtant from each other; they are ſtreaked tranſverſely, more evidently towards the end; their extremities are

* Moſt naturaliſts affirm, that the horns are marked with *two* longitudinal ridges; all thoſe that have fallen under my obſervation have only *one* interior longitudinal ridge, and a faint mark on the exterior edge, which is probably taken for the *ſecond* longitudinal ridge.

much arched, with the points turning inwards. The colour is the ſame with thoſe of the Alpine bouquetins.

DIMENSIONS of the Horns in Parkinſon's, late Sir Aſhton Lever's, Muſeum, (No. 1.) and in the Britiſh Muſeum.

	N° 1.		N° 2.		N° 3.		N° 4.		N° 5.	
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In	Ft.	In
Rectilinear direction, or chord, from the root to the tip -	2	1½	1	9	2	0	1	8	1	6
									1	4
Arc, or length meaſured along the curvature - -	2	8	2	6½	3	6	3	0	3	9
									4	2
Circumference at the baſe - - - -	0	9½	0	8	0	10½	0	9	0	9
Diſtance between them at the baſe - - -	0	0½	0	1	—		—		0	0
Diſtance between them at the tips - - -	1	9¾	2	2	—		—		—	
Number of tranſverſe ridges - - - -	24		12		20		24		—	

It is a common notion of the hunters, adopted by many naturaliſts, that the age of a bouquetin may be eſtimated by the number of tranſverſe ridges or knobs in the horns. M. Van Berchem, however aſſures me, from his own obſervations, that this is a vulgar error, and that the age can only be aſcertained by the number and form of the teeth, as in ſheep and goats. The bouquetin increaſes in bulk to the age of four years; according, therefore, to the ſyſtem of Buffon, that the age is about ſeven times the growth, it lives about twenty-eight or thirty years.

In a ſtate of tranquillity the bouquetin commonly carries the head low; but in running holds it high, and even bends it a little forward. He mounts a perpendicular rock of fifteen feet at three bounds of five feet each, and does not appear to find any footing on the rock, but touches it merely to be repelled, like an elaſtic ſubſtance ſtriking againſt a hard body; he is not ſuppoſed to take more than three ſucceſſive leaps in this manner. If he is between two rocks near each other, and wants to reach the top, he leaps from one ſide of one rock to the other alternately, till he has attained the ſummit. He alſo traverſes the glaciers with rapidity, but only when purſued, for otherwiſe he avoids them.

The bouquetins feed, during the night, in the higheſt woods; but the ſun no ſooner gilds the ſummits, than they quit the woody region, and mount, feeding in their progreſs, till they have reached the moſt conſiderable heights. They betake themſelves to the ſides of the mountains which face the eaſt or ſouth, and lie down in the higheſt places and hotteſt expoſures; but when the ſun has finiſhed more than three quarters of its courſe, they again begin to feed, and to deſcend towards the woods, whither they retire when it is *likely* to ſnow, and where they always paſs the winter. The bouquetins aſſemble in flocks, conſiſting at moſt of ten, twelve, or fifteen, but uſually in ſmaller numbers. The males of ſix years old and upwards haunt more elevated places than the females and younger bouquetins, and as they advance in age are leſs fond of ſociety; they become gradually hardened againſt the effects of extreme cold, and frequently live entirely alone.

In ſummer they feed principally on the *genipi* and other aromatic plants which grow in the high alps; in winter they eat the lichens, and browſe on buſhes and the tender ſhoots of trees. They prefer thoſe ſpots where the dwarf birch and alpine willows

grow,

grow, and where *rhododendron*, *thalictrum*, and *saxifrages* abound. The bouquetins having their fore legs somewhat shorter than the hind legs, naturally ascend with greater facility than they descend; for this reason nothing but the severest weather can force them into the lower regions, and even in winter, if there are a few fine days, they leave the woods and mount higher.

Winter is the season of love with them, and principally the month of January. The females are with young five months, and consequently produce in the last week of June, or the first of July. At the time of parturition they separate from the males, retire to the side of some rill, and generally bring forth only one, though some naturalists affirm that they occasionally produce two. The common cry of the bouquetin is a short sharp whistle, not unlike that of the chamois, but of less continuance: sometimes it makes a a snort, and when young bleats.

The season for hunting the bouquetin is towards the end of summer, and in autumn, during the months of August and September, when they are usually in good condition. None but mountaineers engage in the chace; for it requires not only a head that can look down from the greatest heights without terror, address and sure-footedness in the most difficult and dangerous passes, but also much strength and vigour, to support hunger, cold, and fatigue. The most determined hunters of bouquetins inhabit the mountains of the Lower Vallais, particularly the natives of Servan, a village in a wild and picturesque situation, between Valorsine and Martigny; and the bouquetins being extinct in their mountains, they hunt in those of the valley of Aost, with the permission of the inhabitants.

Two or three hunters usually associate in this perilous occupation: they are armed with rifle-guns, and furnished with small bags of provisions; they pass the night among rocks at considerable heights, erect a miserable hut of turf, where they lie without fire or covering, and on waking not unfrequently find the entrance blocked up with snow three or four feet in depth. Sometimes being overtaken by darkness amid crags and precipices, they are obliged to pass the whole night standing, embraced in order to support each other, and to prevent themselves from sleeping. As the bouquetins ascend into the higher regions early in the morning, it is necessary to gain the heights before them, otherwise they scent the hunter, and betake themselves to flight: it would then be in vain to follow them; for when once they escape, they never stop till they think themselves entirely out of danger, and will even sometimes run ten or twelve leagues.

When a bouquetin is shot, the hunters let it cool upon the spot, and then embowel it, putting the blood into one of the entrails, which is esteemed by the peasants a sovereign remedy in pleurisies and some other disorders. A large bouquetin thus embowelled will weigh 180 or 200 pounds; a female from 70 to 80.

Some naturalists affirm, that the diminution of the race of bouquetins in the Alps is owing to his size, the monstrous length and weight of the horns, which impede him in his course; because he is driven into places where he can scarcely procure sufficient nourishment during great part of the year, where his sight becomes debilitated, and is frequently lost by the strong reflection of the sun from the ice and snow. They consider this animal rather as a native of the subalpine regions, which are covered during summer with the finest herbage, and where the bouquetins and chamois probably pastured in tranquillity, when only the lower vallies and plains were inhabited.

According to the opinion of others, the bouquetin is endued with strength proportionate to his size; though inferior to the chamois in livelineſs and agility, yet he is by no means deficient in activity; his horns, though large and weighty, yet from their reclined position do not seem an impediment, but rather render him an essential service

when he happens to fall, or purpoſely throws himſelf down precipices to avoid his purſuers. His natural food is rather lichens than herbs; he is particularly fond of the young ſhoots of trees and ſhrubs; and in all the places where he inhabits, is found in the coldeſt and rudeſt mountains, and on the ſteepeſt rocks. From theſe circumſtances it is not improbable that his preſent ſituation and manner of life is an effect of nature rather than of neceſſity; and to account for the preſent ſcarcity of the bouquetin, we need only conſider the number of its enemies, in men, beaſts, and birds of prey.

Even ſhould the bouquetin be no longer found in his native Alps, ſtill the race could not be conſidered as extinct, but as having migrated into a milder climate, and, with a ſtate of domeſtication and more ſucculent food, acquired ſofter manners, a form leſs rude, ſmaller and ſmoother horns. For it is not improbable that the bouquetin of the Alps, the *hircus ferus* or bouc-eſtain of Belon, the Siberian ibex, and ægagrus, both accurately deſcribed by Pallas *, and the tame goat in all its different forms, are only varieties of the ſame ſpecies. They are found to couple freely with each other, are aſſerted to produce an offspring which is fertile, and all have a beard, which ſeems to be the characteriſtic of this genus. The circumſtances in which they differ, ſuch as the ſize, coat, and ſhape of the horns, cannot be eſteemed ſpecific diſtinctions, and may be accounted for from a change of climate, ſituation, and food.

The greateſt difference undoubtedly conſiſts in the horns; none perhaps, except the bouquetin, having a longitudinal ridge, and ſome being even without the tranſverſe ridges. But this variation is leſs perceptible, in comparing the bouquetin with the Siberian ibex, the ibex with the ægagrus, and the ægagrus with the tame goat; for the horns of the Alpine bouquetin are not ſo much weightier, longer, and larger, than thoſe of the ibex and ægagrus, as to form a certain *ſpecific* diſtinction †.

But even ſhould this difference be ſtill greater, it can never be admitted as forming a ſpecific diſtinction; for the horns not only vary in individuals of the ſame ſpecies, but in the ſame individuals at different ages; and if we attempt to arrange animals *ſolely* by their horns, the diſcriminations will be as endleſs as uncertain. But ſhould the Alpine bouquetin and the other ſpecies of the goat genus be excepted from this general aſſertion, we have only to add, that the horns of the female bouquetin are like thoſe of the tame goat, and that M. Van Berchem poſſeſſes the horns of a young one, produced from the union of the bouquetin and ſhe-goat, that are exactly ſimilar to the horns of the ægagrus, which, according to Pallas, reſemble thoſe of the tame goat. Climate and nutriment have a great effect upon the horns of animals; it is no wonder, therefore, if a long ſervitude, an inactive life, a change from the aromatic plants and pure air of the mountains to a groſs nutriment and moiſter atmoſphere, ſhould diminiſh the horns, alter their ſhape, ſubdue the longitudinal ridge, and convert the knobs into wrinkles.

* Perhaps alſo the *capra caucaſica*, deſcribed by Pallas, from the papers of Guldenſtaedt, and which he repreſents as differing from the ægagrus, with which it has been confounded by ſome naturaliſts. See Act. Petr for 1779.

† The horns of the bouquetin ſometimes weigh ſixteen or eighteen pounds, are three feet in length, and have twenty-four tranſverſe ridges. A ſingle horn of a Siberian ibex weighed, according to Pallas, eight Ruſſian pounds, which is one-tenth leſs than an Engliſh pound, and had ſixteen or eighteen tranſverſe ridges. The horns of another full-grown Siberian ibex meaſured 2 feet 5 inches and 5 lines along the curvature, and 1 foot 2 inches and 1 line in a rectilinear direction. The horns of an ægagrus meaſured 2 feet 2 inches and 9 lines along the curvature, and 1 foot 4 inches in a linear direction. The horns of a full grown Caucaſan goat were 2 feet 4 inches along the curvature, and 1 foot 6 inches in the linear direction. The longitudinal ridge or ridges remain then as the *only* ſpecific difference between the horns of the alpine bouquetin and thoſe of the other ſpecies. See the meaſurements in Pallas Spic. Zool. and in his Deſcription of the Capra Caucaſica, in Act. Petr. for 1779.

Buffon

Buffon extends the goat genus ſtill further, and comprehends under it even the chamois; conjecturing that the bouquetin is the male in the original race of goats, and the chamois the female. But there does not ſeem the leaſt foundation for this notion; the chamois being an animal totally diſtinct from the goat, never coupling with them, and judiciouſly claſſed by Pallas and Pennant in the genus of antelopes. The conjecture of Buffon, however, that the bouquetin is the original ſource of the tame goat ſeems well-founded, and has been adopted by moſt ſucceeding naturaliſts. And as, according to the juſt obſervations of Pallas, the ægagrus approaches nearer than the bouquetin to the tame goat in its form and horns, the ægagrus may be the link which connects the bouquetin and the tame goat. May not the ægagrus be conſidered as a race produced from the bouquetin and ſhe-goat, or the goat and female bouquetin? Pallas alſo conjectures that the tame goat may have been propagated from the ægagrus and Siberian ibex, which is allowed by moſt naturaliſts to be the ſame as the bouquetin; and Pennant remarks, with no leſs ſagacity, that the tame goats may be derived from both, as we are aſſured that the ibex and ſhe-goat will produce a ſimilar offspring. It is likewiſe probable that the bouquetin is the origin of all the goat genus, becauſe it is the largeſt, ſtrongeſt, and dwells in the moſt inhoſpitable regions. For, according to the obſervations of the great zoologiſt *, thoſe animals who are natives of the coldeſt mountains muſt, on deſcending into the warm plains, be liable to greater changes than thoſe who are formed for milder climates; and this circumſtance ſeems ſufficient to account for the great variety obſervable in the goat genus.

Some naturaliſts pretend that the bouquetin cannot be the original ſtock from whence the goats have been produced, becauſe, as he inhabits the loftieſt ſummits covered with eternal ſnow, and feeds only on plants peculiar to high regions, he cannot be domeſticated in a variety of climates; but this opinion is contradicted by fact and experience. Stumpf, the hiſtorian of Switzerland, informs us, that the Vallaiſans near Sion bred tame bouquetins with their goats; and Belon relates, that the Cretans tamed the young bouc-eſtains by ſuckling them with goats. Pallas alſo frequently obſerved the Siberian ibex among the tame goats, and mentions one in particular at Orenburg, which was leader of a flock, and father of a numerous offspring more reſembling the females than himſelf; it was very different from the tame he-goats, and ſcarcely inferior in ſize to a bouquetin two years old; in colour and ſtrength he reſembled the wild animal, had thick horns, knobbed, not keeled above, and a long rough coat, but nowhere pendent, except in the beard; the black liſt on the back was almoſt obliterated. Laſtly, M. Van Berchem ſaw ſeveral tame bouquetins at Aigle; they were gentle and familiar, and, without being remarkably lively, were active and graceful in all their motions; they bred with different ſhe-goats, and the young ones ſeemed to form a new race.

Should theſe obſervations be well founded, the goat genus, or race of the bouquetin, is found in a wild ſtate along the chain of mountains that traverſes the temperate parts both of Europe and Aſia; on the Alps, Pyrenees, and Carpathian mountains; on the Taurus and Caucaſus; on the mountains of Siberia and Tartary; in Kamtchatka; on the iſlands of the Archipelago; in Hedsjæas in Arabia; in India; perhaps in Egypt and Lybia.

* Pallas.

LETTER

LETTER XLII.—*Journey to Geneva.—Pays de Vaud.—Lauſanne.—Felix the Fifth.—Vevay.—Tomb and Character of General Ludlow.—Clavens.—Meillerie.*

QUITTING the delightful vale of Chamouny and its magnificent ſcenery, we continued our route towards Geneva. As we proceeded the height of the mountains gradually diminiſhed, and the vallies through which we paſſed were agreeably diverſified in their forms and productions. We followed the courſe of the ſonorous and violent Arve; near Salenche paſſed on our right hand a ſmall but pictureſque lake, ſkirted with wood, and from hence deſcended into the plain, which continues almoſt perfectly level to Geneva. Salenche lies at the bottom of a broad valley, which here contracts to a narrow paſs. According to tradition, this little plain was once a lake; and indeed its form, and the quality of the ſoil, ſeem to juſtify tradition: great part is laid waſte by the unruly Arvie, which frequently overflows its banks, and the reſt is moſtly covered with fruit-trees.

Not far from Magland we ſtopped to admire a beautiful fall of water, called the caſcade of Arpenas, which ruſhes, like the Staubbach, from an impending rock. When I ſaw it there was a conſiderable wind, which drove the torrent at leaſt an hundred yards out of the perpendicular direction, into almoſt imperceptible ſpray: I then beheld it trickling down the ſides of the mountains in a thouſand little ſtreams, which united at a ridge, and from thence formed three caſcades; the body of water was much more conſiderable * than that of the Staubbach; and the fall appeared to me altogether as high. Between Magland and Cluſe we took a guide to conduct us to the cave of *la Balme*. The aſcent, though not long, was ſo ſteep that we were nearly an hour in reaching it; we then ſcrambled along a precipice, from which we mounted a ladder, and by the aid of the branches of a nut-tree growing from the rock, pulled ourſelves into a natural cavern more than a quarter of a mile in length, and forming various branches that led into lofty vaults and ſpacious openings, the ſight of which did not anſwer the trouble required to enter it.

We paſſed the night at Cluſe, which is ſituated by the ſide of the Arve, and the next morning came down the banks of that river to Bonneville, the capital of Faucigny: it ſtands alſo upon the Arve, at the bottom of a chain of rocks, which from this place diminiſh into hills. All this part of Faucigny, as alſo a ſmall ſtrip of Chablais through which we paſſed, is a rich plain, producing wine and corn in great plenty, but neither populous nor well cultivated. By the little village of Chene we entered the territory of Geneva, and were much pleaſed with the ſudden change from the poverty of the Savoyards to the neatneſs and eaſe of the Genevans; we admired the populouſneſs of the country, the richneſs of cultivation, and the number of country-ſeats ſcattered about the fields.

As I propoſe re-viſiting Geneva, in my way to the ſouth of France, I will defer my account of that intereſting town until my return.

We went from Geneva to Craſſi, a ſmall village in the Pays de Vaud, where we paſſed a day with an Engliſh gentleman, who has taken a houſe for the ſummer in that delightful ſpot. In our way we paſſed through Verſoi, a little village in the French territories,

* It may be neceſſary to apprize the traveller, that in dry ſummers this caſcade is ſometimes almoſt deſtitute of water, leſt, ſeeing it under that circumſtance, he ſhould conceive the deſcription in the text to be too much exaggerated.

upon the lake of Geneva, which bears the name of *Choiſeul's Folly*. Geneva having fallen under the diſpleaſure of France, that miniſter availing himſelf of the troubles in 1768, laid a plan to build a new town, and monopoliſe the whole trade of the lake. Accordingly he fixed upon Verſoi as the moſt proper ſituation, formed a pier, made a harbour, conſtructed a frigate, marked out the ſtreets, ſent a conſiderable quantity of ſtone to build houſes, and ſtationed a garriſon in temporary huts. But when the harbour was nearly finiſhed, and he had expended about 125,000l. the ſcheme was relinquiſhed.

The road from Geneva to Lauſanne runs through the *Pays de Vaud*, a region of which hiſtorians and travellers ſpeak with rapture; particularly of that part which borders upon the lake of Geneva. It is almoſt the whole way a gradual aſcent from the edge of the lake, richly laid out in vineyards, corn fields, and luxuriant meadows, and chequered with continued hamlets, villages, and towns; the ſhores are generally of the cleaneſt gravel, and the water of the fineſt tranſparency.

We paſſed through Nyon, delightfully ſeated upon the edge of the lake. It was formerly called *Colonia Equeſtris Noiodunum*; and, as a proof of its antiquity, Roman inſcriptions and other ancient remains have been frequently diſcovered in the outſkirts of the town. In this part the lake forms a beautiful curve, happily alluded to by Lucan, where he mentions the army of Julius Cæſar ſtriking their tents, which were poſted on the borders:

Deſeruere CAVO *tentoria fixa Lemano* *.

All the poſſeſſions in this country formerly belonging to the Duke of Savoy were conquered by the canton of Bern in 1536, and in the ſame year the reformation was introduced. From that period all the Pays de Vaud, excepting the common bailliages of Granſon, Orbe, and a ſmall portion of it which was ceded to Friburgh, has been ſubject to Bern, and makes part of that canton.

Morges, ſituated at the extremity of a beautiful bay, is the neateſt town in theſe parts. The environs are extremely pleaſant; the banks of the lake form an amphitheatre gently riſing to the Jura, and Mont Blanc preſents itſelf through an immenſe opening in the oppoſite chain of rocks, which ſeem to have been formed by nature in order to exhibit a ſublime perſpective of that beautiful mountain. Near the town is the lime-tree twenty-four feet three inches in circumference, with branches of magnificent extent; it has a companion about three feet leſs in girth. Mr. Pennant informs me, that "this tree is a native of Switzerland, and of many other parts of the continent; that it was imported into England before the year 1652; one being deſcribed by Dr. William Turner as growing in a park near Colcheſter; that one thirty ſix feet in circumference grew near the great church at Bern; it was planted about the year 1410; and the hollow trunk, ſtill putting forth leaves, remained in the year 1702 †. The Germans, in old times, planted the lime before their churches and in the market-places, on account of its grateful ſhade. This tree is now neglected; yet the Romans eſteemed it ſo highly, as to ſay that it was employed for a thouſand purpoſes; *tiliæ ad mille uſus petendæ*. A

* "They ſtrike their tents and quit the *hollow bend*
"Of Leman's lake."

† A large lime is to be ſeen on the heights above Villars, a ſeat belonging to M. Graffenreid of Bern, near Morat; its girth meaſures at leaſt thirty-ſix feet in circumference, and its height is not leſs than ninety feet; it is very ancient, as it was lopped in 1550, for the ſake of the bark. The traveller who viſits this tree will be no leſs gratified with an extenſive proſpect, commanding the lakes of Morat, Neuchatel, and Bienne, and that ſtupendous chain of ſnowy Alps, which is repreſented on the engraving inſerted in this volume.

ſweet

ſweet juice exudes from the leaves and bark, from which the Poles extract a honey called by them Liepiz *. Bees are alſo fond of the flowers; and Virgil, in his beautiful deſcription of the induſtrious Corycian, places the lime and the pine in the neighbourhood of his hives."

Lauſanne contains about ſeven thouſand inhabitants; it is built upon an aſcent ſo ſteep, that in ſome places the horſes cannot, without great difficulty, draw up a carriage, and foot-paſſengers aſcend to the upper part of the town by ſteps. But theſe inconveniences are amply compenſated by the ſublimeſt views in nature, commanding the lake of Geneva, the Pays de Vaud, and the rugged coaſt of Chablais †.

The ſame year in which part of the Pays de Vaud was conquered from the Houſe of Savoy, the Biſhop of Lauſanne retired from the town, and the inhabitants put themſelves under the protection and ſovereignty of the canton of Bern, which confirmed and augmented their privileges. At preſent Lauſanne is governed by its own magiſtrates, has its own courts of juſtice, and, what is very ſingular, the burghers who poſſeſs houſes in the principal ſtreet enjoy the right of pronouncing ſentence in criminal cauſes. The criminal is tried by the civil power: if he is found, and acknowledges himſelf guilty, one of the magiſtrates pleads in defence of the priſoner, and another againſt him; the court of juſtice give their opinion upon the point of law, and the majority of the burghers poſſeſſing houſes in the principal ſtreet determine the penalty. If the puniſhment is capital, there is, according to the letter of the law, no pardon, unleſs obtained

* ——————*cogere preſſis*
Mella favis; illi tilia, atque uberrima pinus.

† In the firſt and ſecond editions of this work, the letter on the Pays de Vaud contained this paſſage: "The whole Pays de Vaud is much leſs peopled than it was during the laſt century. This depopulation is owing to the increaſe of luxury, which prevents the gentry from from entering into matrimonial engagements ſo generally as they were heretofore accuſtomed, and induces numbers of them continually to emigrate in order to engage in foreign ſervices. For although the government of Bern is certainly very mild, and never lays on any additional taxes, nor ever encroaches upon the privileges of their ſubjects, yet as the gentry are totally excluded from any ſhare in the adminiſtration of public affairs, and commerce is reckoned degrading, they have no other reſource but foreign ſervices. For this reaſon many of them are malcontents, and would gladly exchange the mild republican form under which they now live for a monarchical mode of government."

The omiſſion of this paſſage in the enlarged edition occaſioned a cenſure from ſome Swiſs touriſt, as if I had expunged this paſſage in compliance with the repreſentations of ſome *ariſtocrat* of Bern. I deem it, therefore, neceſſary to ſtate my reaſons for this omiſſion.

In my firſt curſory tour through the Pays de Vaud, I principally frequented the nobility and gentry, from whom I heard repeated complaints of the oppreſſions under which they groaned, and particularly of their excluſion from all ſhare in the government. But in my ſubſequent tours I had an opportunity to examine the condition of the peaſants, and to learn their ſentiments on the nature of the government; and I found that, excepting in the large towns and among the gentry and opulent citizens, the great majority of the natives were fully ſatisfied with their condition, and deprecated all innovation. For this reaſon I omitted the paſſage in the later editions, becauſe the happineſs of a country cannot be eſtimated from the ſituation of the gentry, and a few opulent citizens alone, but from the general welfare of the collective body of the people. Even in the late revolution of Switzerland, which took its riſe in the Pays de Vaud, where the grievances were exaggerated by ſome factious leaders, and fomented by the agents of France, the number of the diſaffected was exceedingly ſmall; and had the government of Bern oppoſed the irruption of the French by arms, and not deprecated it by negociation, the great majority of the natives would have flocked to their ſtandard. A ſmall minority, aſſiſted by France, overcame the majority; and thoſe who firſt introduced the French were ſoon more diſſatisfied with their proceedings, than thoſe by whom they were moſt earneſtly oppoſed. When the tree of liberty was planted at Yverdun, even the adherents of France exclaimed, "It is the tree of ſlavery, and not the tree of liberty."

The Pays de Vaud was ſeparated from the canton of Bern, and formed into an independent republic under the protection of France in January 1798. In the new diviſion of Switzerland it forms the canton or department of Leman, of which Lauſanne is the capital.

within twenty-four hours from the ſovereign council of Bern; although it generally happens that eight days are granted for that purpoſe. When the criminal is ſeized within the juriſdiction of the town, the fact is tried, and the burghers pronounce ſentence in the town-hall: in this caſe there is no appeal. But when he is taken within the diſtrict of the bailiff, they aſſemble in his houſe, and an appeal lies from their determination to Bern. I have been more particular in my inquiries concerning the mode of this criminal proceſs, from the reſemblance it bears, in ſome reſpects, to our trial by jury.

Here is an academy for the ſtudents of this country: profeſſors in every ſcience are appointed by government, and there is a tolerable library for the uſe of the public.

I have ſeveral times had the good fortune to meet Tiſſot *, the celebrated phyſician of this place; well known in the literary world for his excellent writings upon medical ſubjects. His converſation is uncommonly intereſting; as beſides his ſkill in his profeſſion he is well verſed in every branch of polite literature. His private character is no leſs reſpectable than his public, and he is as much eſteemed for his great humanity as for his ſuperior knowledge.

The church of Lauſanne, formerly the cathedral, is a magnificent Gothic building, ſtanding on the moſt elevated part of the town. It contains, among many other ſepulchres, the tomb of Amadeus the Eighth, Duke of Savoy, ſtyled the Solomon of his age, but more known by the name of the anti-pope Felix the Fifth, who exhibited a ſingular inſtance in the annals of Europe, of a perſonage *twice* abdicating the pomp of ſovereignty, and *twice* retiring to a private ſtation.

Having paſſed his early youth and opening manhood in the purſuits of ambition, he enlarged his dominions by the acquiſition of the Genevois and Piedmont, and obtained an increaſe of rank by the erection of Savoy into a duchy. Yet in the midſt of his ſucceſs and propitious fortune, the ſudden death of a beloved wife, and a narrow eſcape from aſſaſſination, inſpired him with a diſguſt of the world; he reſigned his dominions to his eldeſt ſon, and, accompanied with a few lords of his court, retired to a palace at La Ripaille, on the borders of the lake of Geneva. In this palace, which he called an *hermitage*, he enjoyed, with an apparent indifference to the affairs of the world, a calm and tranquillity that ſeemed incompatible with his former aſpiring ambition, until he was ſuddenly called forth to public notice in a more exalted ſtation.

The council of Baſle having depoſed Eugenius the Fourth, induced, according to ſome authors, by the reputation which Amadeus had acquired for ſanctity, influenced, according to others, by his largeſſes and intrigues, raiſed the *hermit* of La Ripaille to the papal throne. This event took place in 1439: the new pontiff quitting his favourite retreat, accepted the proffered dignity either with a real or affected reluctance, and aſſumed the name of Felix the Fifth.

The æra of his diſputed pontificate was marked with turbulence and anarchy. In order to avoid the ſtorms which agitated Europe, and to favour the indolence of his temper, he frequently retreated to his beloved hermitage, and directed the affairs of the church from that ſequeſtered corner. Conſcious, at length, that his acceptance of the papacy ſerved to widen inſtead of healing the ſchiſm of the church; finding that he was oppoſed by the moſt powerful princes of Europe; that, on the death of his rival Eugenius, the cardinals of Rome had choſen another pope, and being ill ſupported by the remains of the council of Baſle, he terminated the ſchiſm by reſigning the papal tiara in favour of Nicholas the Fifth. In this tranſaction he proved his talents for ne-

* Tiſſot is dead ſince this was written.

gociation

gociation by obtaining the following conditions: that he ſhould enjoy the next rank to the pope, be appointed vicar of the Roman ſee, and that all the acts paſſed in his pontificate ſhould be valid. On his reſignation he fixed his reſidence at La Ripaille, and died in 1451.

Felix the Fifth ſhared the fate of many equivocal characters. By ſome he is repreſented as a ſaint, by others, as covering the moſt ambitious deſigns under the maſk of ſanctity; by the former, his reſidence at La Ripaille is deſcribed as the retreat of religious auſterity; by the latter, as the ſeat of luxury. In this, as in ſimilar caſes, both parties exceeded the truth. On reviewing the principal events of his life, we may conclude, that a palace built by a prince, in which he was accompanied by many lords of his court, where he inſtituted an order of knighthood, and reſided with the pomp and dignity of a ſovereign pontiff, could be no common *hermitage*; and that he aſſumed the name, rather than paſſed the life of a *hermit*; while the power and rank which he ſecured to himſelf on his reſignation of the papacy, ſufficiently demonſtrate, that he never intended to renounce the world. On the contrary, ſhould we admit, that his life at La Ripaille was not embittered by penance and mortifications; yet as no contemporary authors, even thoſe who were by no means partial to his character, have ſtigmatiſed his retirement, we ought not haſtily to conclude that it was the retreat of a mere voluptuary. But in whatever light his moral qualities may be conſidered, no one can withhold from him the character of an able politician.

It is not my intention to enter into a general or particular deſcription of the Roman antiquities diſcovered in Switzerland; if you are curious in ſuch reſearches, I muſt refer you to Bochart, Miller, Spon, and other antiquaries, who have minutely treated that ſubject. I cannot, however, avoid mentioning two lately-diſcovered Roman monuments, which are placed in the garden of M. Levade, near the church at Lauſanne.

The firſt is an altar of white marble with red veins, and was found in 1782 by ſome workmen in digging the foundations of a houſe in the town of Vevay; it is broken in a horizontal direction, and what remains is a foot and a half long and a foot high. The inſcription, though not entire, proves it to be an altar erected by the twentieth legion to the god Silvanus:

DEO SILVANO
ESPER URSUL.
FICIO LEG. XX.
DIC

The ſecond monument is a Roman mile-ſtone, diſcovered in a vineyard near Pauda, a few paces from the high road, with this inſcription:

Imp.
Cæs T. Æ. Avg.
Antonino
Pio P M Trib.
Cos. III. P. P.
Avent.: M. P. T
XXXVIII.

This inſcription removed a doubt long entertained by the Swiſs antiquaries. Bochart, among others, expreſſes his ſurpriſe, that no inſcription bearing the name Antoninus Pius, who was ſo great a benefactor to the ancient Helvetians, had been found in Switzerland.

zerland. But this mile-ſtone, which was put up in the third conſulſhip of that Emperor, is probably the prelude to the diſcovery of other monuments erected in his honour.

The road from Lauſanne to Vevay runs along the ſides of the mountaints between continued ranges of vineyards. The induſtry of the Swiſs is nowhere more obſervable than in theſe parts: the mountains in many places, though naturally conſiſting of a bare ſteep rock, are thickly covered with vines; the mould has been brought from other grounds, in order to create a ſoil, and is ſupported by rows of ſtones ranged in ſtraight lines like walls. But this mode of culture, however advantageous and even neceſſary to the natives, occaſions a diſagreeable uniformity in the face of the country. The vines alſo do not form a pleaſing and pictureſque appearance, like thoſe of the Valteline *, which are carried in beautiful feſtoons from tree to tree. The plants are low, and faſtened to poles about four feet in height; and the walls which encloſe them and border the road, frequently interrupt the view.

This diſtrict between Lauſanne and Vevay is called *La Vaux*, and contains the two pleaſant little towns of Lutry and Cully, with the villages of St. Saphorin † and Corſier: it is entirely hilly, riſing abruptly from the lake; above the vineyards are rich meadows, and a continued foreſt.

Vevay, the ancient *Vibiſcum*, and the principal town of the bailliage, is clean and well-built, ſtands in a ſmall plain at the foot of the mountain on the margin of the water, and is one of the few places in the canton of Bern which carry on any trade. The borders of this part of the lake are much more contraſted, wild, and pictureſque, than thoſe about Geneva: the mountains of the Vallais and Savoy boldly project into the water, and form a ſemicircular chain encloſing the lake, except where they are divided by the Rhone a few leagues from Vevay.

Vevay is diſtinguiſhed as the reſidence of Edmund Ludlow, the famous parliamentary general, who, in thoſe times of miſrule and confuſion, uniformly acted with conſiſtency and dignity. True to his republican principles, he no leſs violently oppoſed the daring uſurpation of Cromwell, than the arbitrary meaſures of Charles the Firſt, and could never be prevailed upon, either by threats or promiſes, to deſert the cauſe, which he conſidered as that of juſtice and liberty. Being excepted, as one of the King's judges, from the act of indemnity paſſed at the reſtoration of Charles the Second, he wandered without any fixed place of reſidence, until he found an aſylum from the attempts of his enemies at Vevay, under the protection of Bern.

At the important period of the revolution he returned to England, anxious to ſerve his country under our great deliverer; and William the Third, whoſe mind roſe ſuperior to the narrow prejudices of party, was no leſs deſirous to employ a general of

* See Letter lxxv.

† In the church of St. Saphorin is an ancient Roman mile-ſtone, found near that village:

TI. CLAVDIVS. DRVSI. F.
CÆS. AVG. GERM.
PONT. MAX. TRIB. POT. VII.
IMP. XII. P. P. COS. IIII.
F A
XXXVII.

This inſcription aſcertains two circumſtances frequently called in queſtion: namely, that the banks of the lake of Geneva, which border this part of Switzerland, were compriſed within a Roman province, even ſo early as the time of Claudius; and alſo that *Aventicum* was the chief town of this part of Helvetia: for the mile-ſtones always referred to the capital of the province in which they were placed, and the diſtance from St. Saphorin to *Avenches* is nearly 37,000.

ſuch approved experience and fidelity. But the King being addreſſed by the Houſe of Commons to iſſue a proclamation for apprehending Ludlow, he was compelled to quit England at this critical period, and again ſettled at Vevay. We may collect from his general character and conduct, that, had he been permitted to ſerve his country, he would have ſucceſſively employed his great military talents againſt the aſſerters of bigotry and deſpotiſm, with the ſame zeal which he diſplayed in oppoſing an arbitrary government; he would have ſupported the new adminiſtration, when the enormous prerogatives of the crown, againſt which he had unſheathed his ſword, were aboliſhed by law, and the freedom of the ſubject was eſtabliſhed on the baſis of equal liberty under the authority of a limited monarch.

He died in 1693, in the ſixty-fourth year of his age, and was interred in the church of Vevay. His monument is a plain grave-ſtone of black marble, containing a Latin inſcription, which is printed in Addiſon's Travels. The houſe which he formerly inhabited ſtands near the gate leading to the Vallais, and the uncouth motto inſcribed over the door is ſtill preſerved out of reſpect to his memory:

Omne ſolum forti patria eſt, quia patris.

The memoirs of Ludlow are written in a ſimple and perſpicuous ſtyle, with the knowledge of a man annually engaged in the ſcenes which he deſcribes, and with the ſpirit of a general zealous in the cauſe which he had eſpouſed and defended. Perhaps his animated detail of the trial and execution of the regicides is not ſurpaſſed by any narrative in antient or modern hiſtory.

Nature can ſcarcely form a poſition more delightful than that of the caſtle of Chatillard or Clarens; it ſtands not far from Vevay, above the village, on an eminence, whoſe gentle declivity ſlopes gradually towards the lake, commanding a view of that majeſtic body of water, its fertile borders, and the bold rocks and alps of Savoy. The adjacent ſcenery conſiſts of vineyards, fields of corn and paſture, and rich groves of oak, aſh, and Spaniſh cheſnut-trees. Although the ſituation and environs harmonize with the animated ſcenery in the Eloiſe of Rouſſeau; yet the caſtle by no means accords with his deſcription. The traveller ſees an oblong building with antient towers and a penthouſe roof; in the inſide a large hall like a priſon, and the whole bears rather the antiquated appearance of a feudal manſion inhabited by ſome turbulent baron, than the reſidence of the elegant and impaſſioned Julia.

Oppoſite to Clarens, on the other ſhore of the lake, are the dark gloomy rocks of Meillerie. The village lies in the receſs of a ſmall bay, at the foot of impending mountains, in ſome parts gently ſloping, and clothed to the water's edge with dark foreſts; in others naked and perpendicular, bringing to recollection the fancied rocks of Leucate *.

Theſe are the ſcenes of the Nouvelle Eloiſe. Having obtained that novel at a circulating library in Lauſanne, I continued, during theſe expeditions, to examine the poſition of the country, and compare it with the deſcriptions of Rouſſeau. Small objects may be magnified: but no pencil, however animated, can delineate the wonderful and ſublime works of nature; even the warm colouring of Roſſeau has not equalled the beauty of the ſcenery. I read with attention the principal parts of that ſingular performance, and dwelt more particularly upon that letter, in which St. Preux relates his

* "Je n'ai plus qu'un mot à vous dire, ô Julie. Vous connoiſſez l'antique uſage du *rocher de Leucate* dernier refuge des amans malheureux. Ce lieu-ci lui reſemble á bien des égards. La roche eſt éſcarpée, l'eau eſt profonde, et je ſuis au deſeſpoir."

expedition

expedition to Meillerie; wherein love and deſpair are worked up almoſt to madneſs. Open that performance, read that letter, and conſider that part of it, where St. Preux points out the number of towns and villages, the continued fertility and high cultivation of the Pays de Vaud, and contraſts it with the gloomy coaſts of Chablais, exhibiting only a few towns lying on the edge of the water; you will then ſee the happy effects of liberty under a mild and equitable government, like that of Bern. I am, &c.

LETTER XLIII.—*Caſtle of Chillon.—Villeneuve.—Aigle.—Salt-works of Bex and Aigle.*

TRAVELLERS not unuſually make an agreeable excurſion from Vevay to the ſalt-works of Bex and Aigle.

The road continues along a plain, with hills on one ſide, and the lake on the other. Haller's judicious diſtinction of the elevated part of this country may from this ſpot be well exemplified. The rocky alps are ſeen with their pyramidal tops ſhooting into the heavens, and incruſted with ice and ſnow. Snow likewiſe, at various intervals, covers the ſteep ſlopes beneath the aſpiring peaks; rich paſturage ſucceeds, and the lower parts are clothed with foreſts of firs. The mountains, ſuch as the Jura and thoſe riſing towards Denis and Gruyeres, are fertile in graſs, well wooded, their tops even, extenſive, and arable; and though with little appearance of rock on the ſurface, yet internally filled with a hard yellowiſh ſtone fit for building, but impatient of the chiſſel. The *collines*, or little hills, are frequent at the foot of the mountains, and ſeparated by little vallies watered by brooks.

As I advanced, the mountains approached the lake; their nature changed, their height increaſed, and their craggy tops and wooded ſides convinced me, that I was approaching the genuine alps. Above the woods ſcared, in a moſt pictureſque manner, a lofty pyramidal crag called *Le Dent de Jamant;* the woods were firs mixed with oak; the road lay cloſe to the water's edge.

The caſtle of Chillon, or rather the caſtellated houſe, is a large pile with round and ſquare towers, ſtanding on a rock in the lake, and connected with the land by a draw-bridge. The vaults are very fine; the arched roofs, and the pillars which ſupport it, are in a neat gothic ſtyle. This caſtle *, in 1536, was wreſted from Charles III. of Savoy by the canton of Bern, aſſiſted by the Genevans, who furniſhed a frigate, (their naval force) to beſiege it by water. In a deep dungeon, below the level of the lake, the conquerors found Bonivard, prior of St. Victor, the intrepid antagoniſt of the Duke of Savoy, and the great aſſerter of Genevan independence. He had been impriſoned by the Savoyards during ſix years, and, by conſtant walking in his ſhort limits, had worn a hollow in the rock. This caſtle was for a ſhort time the reſidence of a bailif from Bern, until a more convenient houſe was purchaſed in Vevay.

About half a league further is Villeneuve, a ſmall town at the extremity of the lake. This magnificent piece of water ſtretches from Geneva to Villeneuve, in length fifty-four miles; it is in the ſhape of a creſcent; Switzerland forms the hollow, Savoy the convex part; the greateſt breadth is from St. Sulpice to Grande Rive, where it is twelve miles wide. Savoy affords a rude and awful boundary of aſpiring alps, craggy and covered with the ice of ages. The country from Geneva to the environs of Lauſanne, ſlopes for a conſiderable way to the margin of the lake, and is enriched with all

* The Caſtle of Chillon was ſeized by the inſurgents in January 1798, and this act of rebellion, not being puniſhed, was followed by the ſeparation of the Pays de Vaud from the canton of Bern.

the varieties which nature can beſtow; the long ridge of the Jura, fertile in paſturage, and varied with woods, backs this beautiful tract. Near Lauſanne the banks riſe very conſiderably, and form a moſt charming terrace; a few miles beyond is a rapid deſcent. Near Vevay begins a plain, which is continued far beyond the end of the lake, but contracting, by the approach of the mountains, towards the lake. The colour of the water is extremely beautiful, clear, and at a diſtance ſeems of a moſt lovely blue.

Near Geneva the coaſt abounds in ſmall pebbles covered with a brown incruſtation; from thence as far as Lauſanne the ſhores are ſandy; between that town and Chillon appear ledges of rocks, hard and calcareous; and the extremity of the lake is a marſh formed by the collected mud of the Rhone. The depth is various: De Luc aſſerts, that on ſounding it he had found the greateſt depth to be a hundred and ſixty fathoms: like all inland lakes encloſed within high mountains, it is ſubject to ſudden ſtorms.

I am uncertain whether any birds frequent the lake, which are not common to the reſt of Switzerland. The tippet grebes * appear in December, and retire in February; being obliged to breed in other places, becauſe the lake is almoſt totally deſtitute of reeds and ruſhes, in which they form their floating neſt. The ſkins are an elegant article of luxury, and ſell for about twelve or fourteen ſhillings each.

From Villeneuve the road runs through a beautiful valley, four miles in width, conſiſting of the richeſt meadow and corn land, very populous and finely wooded, bounded on each ſide by the alps, with tops broken into vaſt crags of various forms. I paſſed near La Roche, where a director of the ſalt-works is ſtationed by the government of Bern; a place rendered memorable by the reſidence of Haller, who filled that office from 1758 to 1766, and prepared in this delightful retreat many of his numerous publications, particularly his immortal work on phyſiology.

I left at a little diſtance Yvorne, ruined, in 1584, by the lapſe of a mountain occaſioned by an earthquake, croſſed the torrent of La Grande Eau, and halted at Aigle, a good town, ſeated beneath ſome ſmall round hills prettily covered with firs. This country was conquered from the Savoyards by Bern in 1475, and was made a diſtinct government conſiſting of four *Mandemens;* the governor reſides at Aigle. This town was formerly governed by the family of Torrens; but in 1553 the laſt count formally reſigned his pretenſions at Bern. This government of Aigle reaches to the Pays de Vaud, and, when under the dominion of the Houſe of Savoy, was compriſed within that diſtrict; at preſent it is claſſed under the German diviſion, although the language of the natives is French. Further on the valley is greatly contracted, and ſo filled with trees as to appear a great foreſt. The laburnum abounds in a wild ſtate; the wood is beautifully veined, of great ſtrength, and much uſed for wedges and muſical inſtruments; the variety with ſhort ſpikes of flowers has elegant veins, and is called the *ebony* of the Alps. Pliny ſays its wood is the hardeſt next to the ebony. The cornelian cherry is common in the hedges, and the fruit is frequently preſerved with ſugar. The *Machaleb* cherry, or *Prunus Machaleb*, is found in theſe parts; the wood is red, of fine ſcent, and in requeſt for handles of knives; it is known among cutlers by the name of *Bois de St. Lucie;* a pleaſant ſcented water is diſtilled from the leaves, and the ſeeds are uſed to give a fragrancy to ſoap. Between Aigle and Bex is a moſt pictureſque view of of the caſtle of St. Tryphon, on the ſummit of an inſulated rock in the middle of the plain; it is quite ſurrounded with wood, and realiſes Milton's deſcription of an ancient caſtle,

"Boſomed high in tufted trees."

* Pennant's Brit. Zool. vol. ii. No. 222.

I am informed it is built of marble, and probably of a beautiful black ſpecies in the vicinity. St. Tryphon was a Phrygian, who is ſaid to have ſuffered martyrdom at Nice in 251, at the time of the perſecution under the Emperor Decius.

Bex is a ſmall town at the foot of the mountains, five miles from the ſalt-works at Bevieux; in this diſtrict I obſerved the larch in great plenty. Painters, from the time of Pliny to that of Raphael, truſted their works to this wood, which the Roman naturaliſt ſtyles *immortale* lignum; it is reckoned excellent for all works which are to lie under water; and the borderers on the lake of Geneva prefer it for building their veſſels. In theſe parts I ſaw moſt beautiful woods of cheſnut; Haller ſays they extend ſome leagues, and informs us that they are found in other parts of Switzerland, and even in deſert places in ſome of the tranſalpine diſtricts; accident muſt have brought them thither, as, according to Pliny, theſe trees were firſt introduced into Europe from Sardis.

Upon our arrival at the ſalt-ſprings, I put on a workman's jacket, and went into the mountain about 3000 feet almoſt horizontally. The gallery is ſix feet high, and four broad, and as nicely hollowed as if cut with a chiſſel: it is hewn in a black rock, veined in ſome places with white gypſum. The ſalt is procured from ſprings, which are found within a ſolid rock, perforated at a great expence; the richeſt ſource yields twenty-eight pounds of ſalt *per cent.* and the pooreſt but half a pound. Near theſe ſprings are ſeveral warm ſources which contain a mixture of ſalt, but are ſo ſtrongly impregnated with ſulphur as to flame when a lighted candle is put into the pipe through which they flow. No ſolid ſalt, excepting a few ſmall cubes, has been yet diſcovered; but the mountain is replete with its particles. Rocks of white gypſum or alabaſter, mixed with blueiſh clay, are common near the ſprings, in the ſame manner as may be obſerved in the pits of Northwich, in Cheſhire.

After travelling in this ſubterraneous paſſage near three quarters of a mile, I obſerved a great wheel of thirty-five feet diameter, which raiſes the brine from the depth of about ſeventy feet. From this place is a ſhaft three hundred feet high, which is cut through the mountain to the ſurface, for the purpoſe of introducing freſh air. I noticed two reſervoirs hollowed in the ſolid rock for holding the brine; one was a hundred and ſixty feet ſquare, and nine in depth. Since my firſt expedition to theſe pits in 1776, the workmen had pierced the rock twenty-five feet deeper, and cut a gallery a hundred feet in length; they had alſo begun to form a third reſervoir to contain 5500 cubic feet which was nearly half finiſhed. The brine depoſited in theſe reſervoirs is conveyed, by means of two thouſand pipes, about a league to Bevieux, where the ſalt is extracted.

The brine pits near Aigle contain only from two to one-half *per cent.*, and yield annually about a third as much as thoſe of Bevieux, or about 5000 quintals. The ſalt is much whiter and heavier than that of Bevieux, and conſequently bears a higher price.

Theſe, which are the only ſalt-works in Switzerland, ſcarcely yield a net yearly profit of more than £3000, and furniſh only one-twelfth of the annual conſumption of the canton. The remainder is procured chiefly from France, which by treaty provides the Swiſs ſtates with this commodity at a moderate price; indeed, ſo high is the tax upon ſalt in that kingdom, that even the French ſalt is ſold two thirds cheaper in Switzerland, than in many parts of France *. The ordinary price of common ſalt throughout the canton is three halfpence per pound.

LETTER

* At Paris, where it is the deareſt, a pound of ſalt is ſold for about 13 ſols, or about ſixpence of our money: in ſome other parts of France, for inſtance in Franche Comté, a pound coſts only 4 or 5 ſols; but

LETTER XLIV.—*Valley and Lake of Joux.—Orbe.—St. Barthelemi.—Yverdun.*

Yverdun, Sept. 7.

THE chain of mountains called the *Jura*, begins in the canton of Zuric, extends along the Rhine into the canton and biſhopric of Baſle, ſtretches into the canton of Soleure and the principality of Neuchatel, branches out towards the Pays de Vaud, ſeparates that country from Franche Comté and Burgundy, and continues beyond the frontiers of the Genevois as far as the Rhone. In various parts of the Pays de Vaud, this chain forms many elevated vallies much viſited by travellers, amongſt which, not the leaſt remarkable, is the valley of the lake of Joux, upon the top of that part of the Jura called Mont Joux, in the bailliage of Roman Motier. It contains ſeveral neat and well-peopled villages, is beautifully chequered with wood, arable and paſture ground, and watered by the two picturesque lakes of Joux and Brenet.

Near the ſmall village of Abbaye, a rivulet guſhes from the bottom rock, and loſes itſelf in the larger lake. From the ſmall lake deſcends a ſtream, which is loſt in a hollow gulph called *L'Entonnier*, or the Funnel, a name common to ſeveral others in this place; in this gulph ſeveral mills are turned by the force of the current. About two miles further, on the other ſide of the mountain, the river Orbe burſts forth, and is probably produced by the ſtream here ingulphed.

This little vale is very populous, containing about three thouſand inhabitants, who are remarkably induſtrious. Some make watches; but the greater part are employed in poliſhing cryſtals, granites, and marcaſites. In the ſmall village of Pont, where we lodged, moſt of the inhabitants bear the ſurname of Rochat; a name which alſo runs through the village of Charboniere, with the exception of only two or three families, and is prevalent likewiſe in that of Abbaye: the whole number of theſe Rochats amounts to about a thouſand; they are ſuppoſed to be deſcendants of the ſame family, and their anceſtors came originally from France. Theſe parts are much infeſted with bears and wolves.

In deſcending from this delightful ſpot, through a variety of hill, valley, wood, and lawn; we had a moſt extenſive proſpect, comprehending great part of the Pays de Vaud, the lake of Geneva with its mountainous boundary, and that of Neuchatel. Theſe two lakes appear, from that high point of view, to be nearly upon the ſame level *, with no conſiderable ſwell of the country intervening.

We paſſed through a beautiful and picturesque country from Roman Motier to Orbe; which, according to antiquaries, was the moſt ancient town, and once the moſt powerful, of all Helvetia; it was called *Urba*, and was the capital of the *Pagus Urbigenus*: no remains, however, exiſt at preſent of its ancient ſplendour. Some antique fortifications, an old caſtle, and a round tower, are works probably of later and more turbulent times; erected, perhaps, when this country was divided into a number of feudal ſovereignties. I am greatly pleaſed with the romantic ſituation of the town, the boldneſs of the ſingle-arched bridge projecting over the Orbe, the wild ſcenery on the banks of that river, the frequent cataracts, and the picturesque views in the environs.

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but it is furniſhed to the Swiſs at the rate of 2½ ſols. The reader will recollect that this account was written in 1776.

* According to M. de Luc, the lake of Neuchatel is 159 French feet above that of Geneva.

M. Venel, an eminent ſurgeon of this town, has formed, under the protection of the government of Bern, an eſtabliſhment which well deſerves the attention of the humane and curious traveller. It is an infirmary for the reception of thoſe objects who are born with diſtorted limbs, or owe that misfortune to accident. The children are lodged and boarded in the houſe under the care of his aſſiſtant, who charges himſelf with all the detail of houſekeeping, and of inſtructing thoſe, whoſe age renders it requiſite that their education ſhould not be neglected. M. Venel's ſkill in improving and ſimplifying the machines neceſſary for his purpoſe, has been ſufficiently atteſted by various cures.

Though he chiefly confines his attempts to infants and children, yet he has performed ſeveral cures on adults. His moſt efficacious remedy is a machine which he has invented to embrace the patient's limbs when in bed, and which is contrived to act without diſturbing their reſt. Ingenious as his method is, yet he acknowledges, that much of his ſucceſs depends on mild treatment and continual inſpection. I was convinced indeed of the mildneſs of his treatment, by obſerving ſeveral of theſe children, from four to ten years of age crawling about the ground and diverting themſelves with great cheerfulneſs, although caſed up in their machinery. It may not perhaps be unworthy of remark, that M. Venel, on the admiſſion of a miſerable object, takes in plaiſter of Paris the figure of the diſtorted limbs, in order to demonſtrate the progreſs of the cure. Such an eſtabliſhment redounds highly to the honour of M. Venel, and the government who protects it, and is worthy of imitation in all countries.

Orbe, which is governed by its own magiſtrates, is compriſed within the bailliage of Echalens, belonging to Bern and Friburgh: theſe two cantons alternately ſend a bailif, who reſides at Echalens, and remains in office during five years. When Bern appoints the bailif, an appeal lies from his deciſions to the Sovereign Council of Friburgh; as it does to the government of Bern, when he is nominated by Friburgh. By theſe means a great check is laid upon the exactions of the bailif, and I am informed, that juſtice is no where more equally adminiſtered than in theſe common bailliages of the cantons.

Perhaps one of the moſt beautiful and fineſt poſitions in Switzerland is the caſtle of St. Barthelemi, the ſeat of Count d'Affry, colonel of the Swiſs guards; and now inhabited by his ſon, Count Louis d'Affry, to whom I was indebted for a moſt kind and friendly reception. This ancient family-ſeat ſtands on an eminence in the bailliage of Echalens, about three miles from Orbe, near the high road from Lauſanne to Yverdun. The ſides of the eminence are feathered with wood, and below are rich fields and meadows of the fineſt verdure, watered by two lively torrents which unite and form the Falun. Upon the high road, the count has reared an obeliſk, on which he has inſcribed, in the true ſpirit of toleration, "*Praiſe God, all ye nations*," in the Engliſh, Latin, French, and German languages.

The caſtle commands a proſpect of a moſt fertile and well-wooded country, gently broken into hill and dale; on one ſide appears a diſtant view of the Jura and the hills of Burgundy and Franche Comté; on the other, the horizon is bounded by the rugged alps in the canton of Bern and in the Vallais, by Mount Velain, the higheſt point of St. Bernard, and Mont Blanc, whoſe ſuperior elevation above the ſurrounding heights is ſuch, that its ſummit reflects the rays of the riſing ſun ſeveral minutes ſooner, and retains thoſe of the ſetting ſun ſeveral minutes later than any of the circumjacent mountains.

From St. Barthelemi we deſcended into the plain, which ſtretches to the lake of Yverdun, and was formerly covered as far as Entreroches (three leagues from its preſent

ſent poſition) and probably further, by that lake; it is now, for a conſiderable part, a great ſwamp. Within a quarter of a mile of the town, are warm baths which are ſtrongly ſulphureous, and much frequented during the ſummer months.

Yverdun is large, airy and well-built with ſtone, like the towns in the Pays de Vaud: it ſtands near the lake, in a ſmall iſland formed by the two branches of the river Thiele. Between the town and the lake a pleaſant lawn extends to the water, planted with avenues of lime trees. Yverdun carries on ſcarcely any trade, and its principal ſupport ariſes from the paſſage of the merchandiſe between Piedmont and Germany. This town is celebrated for its printing-preſs, eſtabliſhed in the beginning of the preſent century; but entirely neglected until, ſome years ago, it was renewed by *Felice*, a Neapolitan of learning and abilities.

The lake of Yverdun, or of Neuchatel, ſtretches from ſouth to north about twenty miles in length, and in ſome places about five in breadth; its ſhores near Yverdun are covered with country-houſes.

It is extraordinary, that the dull and taſteleſs uniformity of the French gardens ſhould have been adopted by the Swiſs, whoſe country abounds with noble and pictureſque ſituations, and where nature wantons in the moſt luxuriant variety. I have frequently obſerved, in the midſt of the moſt romantic ſcenes, a majeſtic foreſt ſliced into regular alleys, and at the very borders of the fine lakes, artificial pools of water edged with ſun-burnt parterres.

Should any perſon in this inſtance accuſe me of national prejudice, let me exclaim with Voltaire, who certainly cannot be convicted of partiality to the Engliſh:

Jardins plantés en ſymmétrie,
Arbres nains tirés au cordeau,
Celui qui vous mit au niveau
En vain s'applaudit, ſe récrie;
En voyant ce petit morceau,
Jardins il faut que je vous fuie,
Trop d'art me revolte et m'ennuie:
J'aime mieux ces vaſtes foréts,
La nature libre et hardie
Irreguliere dans ſes traits
S'accorde avec ma fantaſie.

I am, &c.

LETTER XLV.—*Granſon.—Neuchatel.—M. Pury's Benefactions.*

WE ſkirted the weſt ſide of the lake of Neuchatel through Granſon, the principal town of a bailliage of that name, belonging to Bern and Friburgh, and remarkable for the battle in which Charles the bold, Duke of Burgundy, was defeated by the Swiſs in 1467. We entered the principality of the Neuchatel about ſix miles from that town, and paſſed through St. Aubin, Boudri, Colombier, lying pleaſantly upon the borders of the water. The road runs along the ſide of the Jura, through a country that reſembled, in ſome meaſure, the diſtrict of La Vaux, between Lauſanne and Vevay: the ſides of the Jura are almoſt the whole way covered with vines, ſupported in many parts by low ſtone walls. The borders are more uniform than thoſe of the lake of Geneva, and do not riſe into ſuch high, irregular and groteſque alps as the coaſt of Chablais. Towards Granſon and St. Aubin, the country is more diverſified with meadows and corn-fields; nearer to Neuchatel, the ſummits of the mountains are clothed with foreſt, and the midland and lower parts entirely planted with vines.

Between the lake and the Jura many ſtreams burſt from the rock, and after turning ſeveral mills, fall into the lake at a little diſtance from their ſource. The largeſt is that of La Serriere, near a ſmall village of the ſame name, which we croſſed in our way to Colombier, where we dined with a family whoſe acquaintance we had formed at the baths of Leuk. We paſſed a very agreeable day with theſe amiable perſons; by whom we were received with that frankneſs and unaffected eaſe which characteriſes true politeneſs.

After dinner ſome muſicians of the country performed the *Renz des vaches*, that famous air which was forbidden to be played among the Swiſs troops in the French ſervice; as it awakened in the ſoldiers ſuch a longing recollection of their native country that it often produced a ſettled melancholy, and occaſioned frequent deſertion. The French call this ſpecies of patriotic regret, *la maladie du pays*. There is nothing peculiarly ſtriking in the tune; but, as it is compoſed of the moſt ſimple notes, the powerful effect of its malady upon the Swiſs, in a foreign land, is leſs ſurpriſing. Nothing indeed revives ſo lively a remembrance of former ſcenes, as a piece of favourite muſic which we were accuſtomed to hear amid our earlieſt and deareſt connections; upon ſuch an occaſion, a long train of aſſociated ideas riſe in the mind, and melt it into tenderneſs. To uſe the language of poetry,

> There is in ſouls a ſympathy with ſounds.
> Wherever I have heard
> A kindred melody, the ſcene recurs,
> And with it all its pleaſure and its pains*.

It is obſervable, that thoſe who inhabit mountainous countries are moſt ſubject to this *maladie du pays*, becauſe their habits of life are eſſentially different from the cuſtoms and manners of other parts. Accordingly, the Scotch highlanders, and the Biſcayans, as well as the Swiſs, when abſent from their homes, are peculiarly apt to be affected with every circumſtance that recalls it to their minds.

The town of Neuchatel is ſmall, and contains about 3000 ſouls. It lies partly upon the little plain between the lake and the Jura, and partly upon the declivity of that mountain; in conſequence of which ſituation, ſome of the ſtreets are very ſteep. At the commencement of the preſent century, commerce was almoſt wholly unknown in this town, as the ridiculous pride of its being deemed degrading generally prevailed among the inhabitants: this ſenſeleſs prejudice, is now, however, nearly extinguiſhed. The chief article of exportation is wine, produced from the neighbouring vineyards, and much eſteemed; manufactures alſo of printed linens and cottons have been eſtabliſhed with ſucceſs; and within theſe few years, ſeveral merchants have raiſed large fortunes.

Oct. 3, 1786.

The mildneſs of the government, and the general well being of the inhabitants, are viſibly demonſtrated from the increaſe of population, and the prodigious influx of ſettlers. The number of ſouls in the principality of Neuchatel and Vallengin being, in 1752, only 28,017 ſubjects, and 4318 aliens, amounted, in 1784 to 31,576 ſubjects, and 9704 aliens, which gives an increaſe of near a fourth part within the ſpace of thirty-two years. The facility of acquiring the burgherſhip of Neuchatel has alſo prevented any decreaſe of inhabitants. Thus the magiſtrates, between the years 1760 and 1770,

* Cowper's Taſk, book vi.

admitted forty-one burghers; from 1770 to 1780, forty-ſix; from 1780 to 1785, fifty-one; in all, a hundred and thirty-eight. Many of theſe ſettlers had children before they purchaſed the burgher-ſhip; thirty-eight were foreigners, either German, French, or Swiſs.

Several public works and buildings have been lately erected at Neuchatel, at an expence far exceeding the revenues, or even wants of this little ſtate. Amongſt others I ſhall mention a ſuperb cauſeway leading towards the valley of St. Imier, and a town-houſe, built of ſuch ſolid materials, as if intended to ſurvive to the moſt diſtant poſterity, and rival the duration of the much-famed Roman capitol *.

The perſon to whom the burghers of Neuchatel principally owe the embelliſhment of their town is M. David Pury, late banker of the court at Liſbon. He was a citizen of Neuchatel, and was born in 1709: his father was mayor of Lignieres, afterwards colonel and juſtice of peace in South Carolina, and founder of Puriſburgh. Having received his education in his native town, he quitted it, as ſome ſay, in great poverty, and repaired to Geneva, where he paſſed his apprenticeſhip, but in what houſe, or in what trade, the perſon who obligingly furniſhed me with theſe anecdotes did not mention. From Geneva he went to London, and acted as one of the clerks to an eminent jeweller, where he acquired great ſkill in eſtimating the value of diamonds. After a long reſidence in England, he eſtabliſhed himſelf in Liſbon, and carried on an extenſive commerce, particularly in brazil-wood and precious ſtones. Being appointed court banker he rapidly increaſed his fortune. This generous man, however, did not, with a parſimony uſual in perſons who have enriched themſelves by commerce, conſign his money to his coffers, or ſparingly diſtribute his largeſſes; on the contrary, while living, he remitted large ſums of money to his native town, and being unmarried, and having only diſtant relations, left his country his heir. The following is a liſt of the ſums which he gave away, either in charitable donations, or for the improvement of Neuchatel.

From the year 1771 to 1786, 100l. annually for the poor of Neuchatel, and the ſame ſum for thoſe of Vallengin, which, for fifteen years, amounts to 3000l. Different ſums at various periods, and for divers uſes, to January 1785, amounting to 15,900l. To this muſt be added the purchaſe of near 7000 tickets in the lottery towards raiſing a fund for building and endowing an hoſpital, which tickets he alſo preſented to the the ſaid hoſpital. He died on the 31ſt of May 1785; and the remains of his fortune, bequeathed to his country, after the payment of a few legacies, did not fall ſhort of 160,000l., which, together with the contributions in his life-time, render his benefactions equal to almoſt 200,000l.

His grateful country obtained from the King of Pruſſia the title of baron in his favour; a title which, through his ſingular modeſty, he neither bore nor uſed in the ſignature of his letters. The citizens of Neuchatel have placed the portrait of this generous benefactor in one of the apartments in which government aſſembles, and have ordered a marble buſt to be executed for the new town-houſe.

* *Capitoli* IMMOBILE *ſaxum.* Virgil.

LETTER XLVI.—*Expedition to Locle and Chaux de Fond.*

Neuchatel, September 11.

I AM charmed with an expedition to the ſummit of the Jura, and will give you a ſhort account of it, while the impreſſion remains warm upon my mind.

The principality of Neuchatel and Vallengin ſtretches from the lake to the limits of Franche Comté, containing in length, from north to ſouth, about twelve leagues, and about ſix in its greateſt breadth. The diſtrict of Neuchatel occupies all the plain, together with the lower parts of the mountains; while Vallengin is totally encloſed within the Jura. Parallel chains of the Jura run from eaſt to weſt, and form, in the moſt elevated parts, ſeveral valleys. The lower grounds of this chain are arable lands and vineyards: the higher conſiſt of large tracts of foreſt, which in many parts have been cleared, and converted into conſiderable paſtures, intermixed with ſome fields of barley and oats. But the ſingular genius and induſtry of the numerous inhabitants, particularly demand the attention of every curious traveller.

We paſſed through *Vallengin*, the capital of the diſtrict; a ſmall open burgh, with a modern caſtle built on ſome ancient ruins; and then croſſed the *Val de Ruz*, containing above twenty villages, ſituated at the foot of the mountains which border the valley: the inhabitants in general are employed in agriculture, ſome few excepted, who follow occaſionally the mechanical arts. We arrived about mid-day at La Chaux de Fond, a large handſome village lying in a broad valley which reaches to Franche Comté: from thence we proceeded to Locle, through a continued range of pleaſing cottages, which ſkirt both ſides of the road, and are ſcattered likewiſe over the country.

La Chaux de Fond and Locle, together with the diſtricts belonging to them, may contain about ſix thouſand inhabitants, diſtinguiſhed for their genius, induſtry, and ſkill in the mechanical arts. They carry on an extenſive traffic in lace, ſtockings, cutlery, and other articles of their own manufacture; but particularly excel in watch-making, and every branch of clock work. All ſorts of workmen neceſſary for the completion of that buſineſs, ſuch as painters, enamellers, engravers, and gilders, are found in thoſe villages, where, upon an average, about forty thouſand watches are yearly made. The genius and induſtry, indeed, obſervable upon theſe mountains, exhibit a ſcene uncommonly pleaſing; as every individual is ſure, not only of obtaining a comfortable maintenance, but alſo of ſoon placing his children in a way of procuring their own livelihood; the people marry very early.

Not many years ago the greater part of theſe valleys was almoſt one continued foreſt; but the wonder-working powers of induſtry have happily changed the ſcene into flouriſhing villages and fertile paſtures. The increaſe of population will appear from the following fact: formerly the produce of the country was more than ſufficient for the conſumption of the inhabitants; at preſent, although conſiderably more cultivated, it ſcarcely furniſhes an eighth part of the proviſions neceſſary for interior conſumption; the remainder is drawn from Franche Compté. And no wonder; for beſide the natural effect of their frequent and early marriages, every ſtranger, who brings a certificate of his good behaviour, is at liberty to ſettle, and follow any trade without the leaſt reſtriction. Here no apprenticeſhip is neceſſary, nothing is contraband, and induſtry exerts herſelf untaxed.

Beſide

Beſide thoſe particular arts I have already mentioned, ſeveral inhabitants of Locle and La Chaux de Fond are well ſkilled in other branches of mechanical ſcience, and have invented uſeful mathematical and aſtronomical inſtruments. Among thoſe who have eminently diſtinguiſhed themſelves in this way, is the famous Jaquet Droz, who is now at Paris, and whoſe ſon exhibited in England ſeveral automatical figures of a very ſingular and ſurpriſing conſtruction: one played upon the harpſichord another drew landſcapes, and, what is ſtill more extraordinary, a third copied any word preſented to it, or wrote down whatever was dictated by any of the company. Theſe are certainly wonderful inventions, and ſeem to exalt the powers of mechaniſm; but ſtill they are mere toys, and an unworthy waſte of great genius: it is Swift making riddles. How much more laudably, and with equal ſucceſs, might the ſame talents and application have been exerted in improving, or adding to, thoſe inſtruments and apparatus which are neceſſary to the aſtronomer and natural philoſopher!

The origin of watch-making in theſe parts, as related by M. Oſterwald, the hiſtoriographer of theſe mountains, is extremely curious; the truth of his account was confirmed to me by ſeveral artiſts both of Locle and La Chaux de Fond. In 1679 one of the inhabitants brought from London a watch, which being out of order, he entruſted it to Daniel John Richard, of La Sagne. Richard, after examining the mechaniſm with great attention, determined to attempt making a watch from the model before him: but being deſtitute of every other reſource than the powers of his own native genius, he employed a whole year in inventing and finiſhing the inſtruments previouſly neceſſary; and in ſix months from that period (by the ſole force of his own penetrating and perſevering talents) produced a complete watch. But his induſtry did not ſtop here: beſides applying himſelf ſucceſsfully to the invention of ſeveral new inſtruments uſeful for the perfection of his work, he took a journey to Geneva, where he gained conſiderable information in the art. He continued for ſome time the only watch-maker in theſe parts; but buſineſs increaſing, he inſtructed ſeveral aſſociates, by whoſe aſſiſtance he was enabled to ſupply from his ſingle ſhop all the demands of the neighbouring country. Towards the beginning of the preſent century he removed to Locle, where he died in 1741, leaving five ſons, who followed their father's occupation. The knowledge and practice of the art gradually ſpread itſelf, is now become almoſt the univerſal occupation of the inhabitants, and may be deemed the principal cauſe of the population obſervable in theſe mountains.

The inventive genius of this mechanical people diſcovers itſelf upon all occaſions, where it can be applied to the purpoſes of their convenience and accommodation. To give an inſtance: the rocks in moſt parts of the Alps being exceedingly hard and ſolid, the waters uſually make their way along their ſides, and ruſh down in perpetual torrents; but the ſtrata which compoſe the Jura being leſs firm and compact, the rains and melted ſnow penetrating into the crevices, form ſubterraneous channels, and iſſue in rivulets at the bottom of the mountains. The peaſants, availing themſelves of this peculiarity, have, in the midſt of theſe ſubterraneous channels, with much labour, erected mills which are turned by the deſcending torrents. They have conſtructed wheels in places where it ſeemed ſcarcely practicable, invented new modes of ſcaffolding, and a great variety of other ingenious contrivances in order to facilitate their work.

The natives are exceedingly courteous to ſtrangers who viſit their country. They are in general well informed in ſeveral branches of knowledge, and, as they uſually employ their leiſure hours in reading, many of the villages contain circulating libraries. The houſes are plaiſtered and white-waſhed; though ſmall, are commodious and well-

built, and furniſhed with a degree of neatneſs, and even elegance, peculiarly ſtriking in theſe ſequeſtered mountains.

The rock which forms the baſe of the Jura, is moſtly compoſed of calcareous ſtone; and perhaps there is no ſpot in Europe where ſuch large quantities of petrified ſhells and marine plants are found in ſo ſmall a ſpace. Near Locle I obſerved a ridge of hills, that ſeemed to conſiſt entirely of *pierres arboriſées*, or ſtones bearing the impreſſion of plants.

Such perfect eaſe and plenty reigns throughout theſe mountains, that I ſcarcely ſaw one object of poverty; the natural effects of induſtry under a mild and equitable government. It is of theſe vallies, and of their inhabitants, that Rouſſeau gives ſo enchanting a deſcription in his letter to D'Alembert.

In returning we had a moſt ſublime proſpect of the lakes of Neuchatel, Bienne, and Morat, with the high and rugged chain of Alps ſtretching from the cantons of Bern and Friburgh, as far as the Valiais, and the mountains of Chablais. I am, &c.

LETTER XLVII.—*Government of Neuchatel.*

AFTER the extinction of the kingdom of Arles or Burgundy, Neuchatel was governed by a ſucceſſion of petty ſovereigns. The direct line failing, the country was poſſeſſed by a collateral branch, the Counts of Friburgh, in oppoſition to the Counts of Chalons, who claimed it as liege lords. On the extinction of the male line it was transferred to the family of Hochberg, and the heireſs of this houſe conveyed it in marriage to Louis d'Orleans, Duke of Longueville (1504). His laſt deſcendant, Mary d'Orleans, Ducheſs of Nemours, dying in 1707 without iſſue, numerous claimants appeared; but the right of Frederic the Firſt, King of Pruſſia, as heir to the houſe of Chalons, was acknowledged by the ſtates of the country, and it now forms part of the Pruſſian dominions.

Neuchatel is alſo an ally of the Helvetic Confederacy, by means of treaties of comburgherſhip with Soleure, Bern, Friburgh, and Lucern.

The conſtitution of Neuchatel is a limited monarchy. The machine of this government is indeed actuated by ſuch nice ſprings, and its motions are ſo exceedingly complicated, that a ſtranger cannot readily diſtinguiſh, with any degree of accuracy, the prerogatives of the ſovereign, and the franchiſes of the people; particularly as ſome even of their moſt important privileges depend upon mutual acquieſcence and immemorial cuſtom, and not upon written laws. I ſhall endeavour, however, to trace the principal features of this government, the reſult of my beſt inquiries during my continuance at Neuchatel.

Upon his acceſſion Frederic the Firſt ſigned and ratified certain general articles, which in a great meaſure eſtabliſhed the prerogatives of the prince and the liberties of the ſubject. Beſide theſe general articles, others were added at the pacification of 1768, which terminated the diſpute between the ſovereign and ſubject. By this pacification, the King not only renewed his aſſent to the *general* articles, but alſo explained them, wherever their tenor had been miſtaken; expreſsly confirming alſo ſeveral other privileges in favour of the people, which had hitherto been equivocal, or not duly obſerved.

The moſt important of theſe general articles are:

1. The ſovereign promiſes to maintain the reformed religion as by law eſtabliſhed; and to tolerate no other ſect, except within the diſtricts of Landeron and Creſſier, where the

the Catholic religion is dominant. 2. No perſon but a native of the country is capable of holding any civil or military charge, excepting that of governor, who may be a foreigner; and the ſame incapacity is extended even to natives, who are in the ſervice of a foreign prince. 3. All the ſubjects have a right to enter into the ſervice of a foreign power, provided that power is not in actual war againſt the prince, as ſovereign of Neuchatel; and if the ſovereign ſhould be engaged in hoſtilities which do not concern Neuchatel, that ſtate may continue neuter, except the Helvetic body ſhould be involved in the conteſt *. 4. Juſtice ſhall be equitably adminiſtered; and for this purpoſe, the three eſtates of Neuchatel and Vallengin ſhall be annually aſſembled. 5. The magiſtrates and officers of juſtice, inſtead of holding their employments during pleaſure, ſhall enjoy them during their good behaviour. By the late pacification it was further agreed, that the prince is not himſelf the judge of their good behaviour; and they cannot be deprived of their places, unleſs they are fully convicted of malverſation in office, by certain judges at Neuchatel appointed for that purpoſe. 6. The ſovereign ſhall take the accuſtomed oath upon his acceſſion, and promiſe to maintain all the rights, liberties, franchiſes, and cuſtoms, written or unwritten.

It is remarkable, that one of the moſt eſſential rights of the ſubject depends upon immemorial uſage; for that "the ſovereign ſhall be conſidered as reſident only at Neuchatel," is in the number of their unwritten immunities. Now this privilege, in conjunction with the third article, forms the baſis of their civil liberty. By the former, the prince when abſent can only addreſs his ſubjects through his governor and council of ſtate, and no ſubject can be tried out of the country, or otherwiſe than by judges appointed by the conſtitution: by the latter, ſhould the King of Pruſſia be at war with all Europe, the people of Neuchatel and Vallengin are by no means obliged to arm in his defence; but individuals may even ſerve againſt him, ſo long as the powers whom they ſerve are not engaged in hoſtilities againſt their country †.

Beſide theſe general articles, that comprehend the privileges of the people at large, there are others which the ſovereign is equally bound to maintain, relating to the town of Neuchatel, and the diſtrict of Vallengin in particular.

The prince confers nobility, nominates to principal offices of ſtate, both civil and military, and appoints the chatelains and mayors, who preſide in the courts of juſtice. His revenues, which ſcarcely amount to 5,000l. a-year, ariſe from certain demeſnes, from a ſmall land-tax, from the tithes of wine and corn, and from the tenth of the value on the ſale of immoveables. With regard to commerce, no ſubject pays any duties either of importation or exportation, except for foreign wines imported into the town of Neuchatel.

* The laſt clauſe of this article is not ſo clearly worded as it might have been; from a delicacy, I ſuppoſe, of not expreſsly ſtipulating, that the ſtate of Neuchatel and Vallengin may oppoſe their ſovereign by arms, in caſe the Swiſs ſhould be engaged in war againſt him. It is evident, however, that they conſider their connection with the Helvetic body as of ſuperior obligation to that with their prince, as ſovereign of Neuchatel and Vallengin.

The remarkable clauſe in queſtion is as follows:

Et qu'en outre et conformément à des articles exprés et formels des franchiſes tant de la bourgeoiſie de Neufchâtel que de celle de Vallengin, cet Etat ne puiſſe être engagé dans aucune guerre, ni les ſujets d'icelui obligés d'y marcher, que ce ne ſoit pour la propre guerre du Prince, c'eſt à dire, pour la defence de l'Etat, et pour la guerres que le Prince pourroit avoir en tant que ſouverain de Neufchâtel et non autrement: en ſorte que s'il avoit guerre pour raiſon de quelque autre Etat, terres et ſeigneuries, l'Etat de Neufchâtel ne ſoit point obligé d'y entrer; mais en ce cas devra demeurer dans la neutralité, à moins que tout le corps Helvetique en général n'y prit part et intérêt.

† When Henry Duke of Longueville, and ſovereign of Neuchatel, was, in 1650, ſent to the caſtle of Vincennes, Felix de Mareval, captain of the Swiſs guards, kept guard in his turn, though he was citizen of Neuchatel, at the door of the priſon in which *his ſovereign* was confined.

During the abſence of the prince, he is repreſented by a governor of his own appointing, who enjoys conſiderable honours, but is extremely limited in his authority. He convokes the three eſtates, preſides in that aſſembly, and has the caſting vote when the ſuffrages are equal; he enjoys the power in criminal caſes of pardoning, or of mitigating the ſentence. In the governor's abſence his place is ſupplied by the ſenior counſellor of ſtate.

The three eſtates of Neuchatel form the ſuperior tribunal, and receive appeals from the inferior courts of juſtice. They are compoſed of twelve judges, divided into three eſtates: the firſt conſiſts of the four ſenior counſellors of ſtate, who are noble; the ſecond, of the four chatelains of Landeron, Boudry, Val de Travers, and Thielle*; and in caſe of abſence, their place is ſupplied by the reſpective mayors in the principality of Neuchatel, according to a regulated order; the third is compoſed of four counſellors of the town of Neuchatel. The judges in the firſt and ſecond diviſion hold their places for life; thoſe in the third are appointed annually. This body ordinarily aſſembles every year in the month of May; but is convoked extraordinarily upon particular occaſions; the town of Neuchatel is always the place of meeting.

The three eſtates are not the repreſentatives of the people, nor do they poſſeſs the legiſlative authority. They are, properly ſpeaking, the ſupreme court of judicature, which receives all appeals, and decides finally all cauſes, even thoſe relating to the ſovereignty of the country; a power which they exerciſed in the year 1707, upon the extinction of the direct line in the perſon of the Ducheſs of Nemours.

It may be here not unworthy of remark, that the three eſtates decided the famous cauſe of the ſucceſſion in 1707, as a proceſs between the ſeveral claimants of the ſovereignty. But if (in failure of claimants) a new ſovereign was to be choſen, or a new form of government eſtabliſhed, the queſtion would no longer be conſidered as amenable to a court of judicature, but would be referred to the people aſſembled by means of their repreſentatives.

The council of ſtate is inveſted with the ordinary adminiſtration of government, ſuperintends the general police, and is entruſted with the execution of the laws. The members nominated by the ſovereign are not limited in number. The prince exerciſes his authority by means of this council, in which he is always conſidered as perſonally preſiding: the power of the preſident is only to convoke the aſſembly, to propoſe the ſubject of their conſideration, to collect the votes, and to decide when the voices are equal. The ordinances of the council are previouſly communicated to the *miniſtraux* of Neuchatel, who are to certify that they contain nothing contrary to law.

The town of Neuchatel enjoys very conſiderable privileges: it has the care of the police within its own diſtrict, and is governed by its own magiſtracy, conſiſting of a Great and Little Council. I will not trouble you with a detail of the ſeveral departments; but I cannot omit mentioning the *miniſtraux*, becauſe the members of that body form the third eſtate on every act of legiſlation. The *miniſtraux* are a kind of committee from the council of the town, entruſted with the adminiſtration of the police. They conſiſt of the two preſidents of that council, four maſter-burghers drawn from the Little Council, and the *banneret*, or guardian of the people's liberties. The preſident and maſter-burghers are changed every two years; the banneret is choſen by the general aſſembly of the citizens, and continues in office during ſix years.

* The principality of Neuchatel is divided into a certain number of diſtricts, ſome of which are denominated *chatellaines*, and others *mayoralties*. The chiefs of the former are called *chatelains*, and of the latter *mayors*: in every other reſpect their office and power is the ſame.

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The legiſlative authority is ſo complicated, that it would be no eaſy taſk to determine preciſely where it abſolutely reſides. Perhaps an account of the perſons concerned, and of the forms obſerved, in enacting and promulgating laws, may aſſiſt in clearing the difficulty.

As ſoon as the cauſes are decided by the three eſtates aſſembled in the month of May, the four judges who form the third eſtate retire, and are ſupplied by the four *miniſtraux*. The attorney-general then deſires the members of the three eſtates to take into conſideration whether it is neceſſary to frame any new laws? When a new ordinance is propoſed, a declaration is drawn up and delivered to the council of ſtate for their deliberation, whether it is contrary to the prerogatives of the prince, or to the rights of the ſubject? From thence it is communicated to the council of the town, in order to be examined, whether it infringes the privileges of the citizens. If adopted by the council of ſtate and the council of the town, it is propoſed to the prince for his approbation or rejection: in the former caſe, it is again publicly read before the three eſtates, and the governor or preſident declares the approbation of the ſovereign. It is then promulgated, or, as the expreſſion is, paſſed into a law by the three eſtates.

Since the acceſſion of the houſe of Brandenburgh, the people of Vallengin are always conſulted upon the framing of a new law. For this purpoſe the three maſter-burghers of Vallengin examine, whether it contains any thing inconſiſtent with the franchiſes of that diſtrict? in which caſe they have the power of remonſtrating to the governor in council.

From this detail it ſhould ſeem, that the legiſlative authority reſides conjunctively in the prince, the council of ſtate, and the town; that the people of Vallengin have a kind of negative voice, and that the three eſtates propoſe and promulgate the laws.

Every year, at the concluſion of the aſſembly of the three eſtates of Neuchatel, thoſe of Vallengin, as conſtituting the ſupreme court of judicature for that country, meet at Vallengin, and decide finally all appeals from the inferior courts of juſtice. The *firſt* of theſe three eſtates is formed by the ſame four noble and ſenior counſellors, who ſit in the firſt of the three eſtates of Neuchatel; the *ſecond* by four mayors of the county of Vallengin; and the *third* by four members of the court of juſtice of Vallengin, nominated by the mayor of Vallengin. The governor, or, in his abſence, the ſenior counſellor preſides, as in thoſe of Neuchatel. The three eſtates of Vallengin have no interference in any act of legiſlation: the laws which have been framed or amended at Neuchatel being ſimply remitted to them by the ſolicitor-general, and publicly read.

The people of Vallengin aſſemble every three years in an open plain, to elect their three *maſter-burghers*, who are reſpectively choſen from the inhabitants of the burgh of Vallengin, of the Val de Ruz, and of the mountains. The function of theſe maſter-burghers is to watch over the general intereſts of the people: they are alſo in ſome caſes deputed to Neuchatel by the people, whenever they are ſummoned by the governor and council of ſtate, in relation to any affair which particularly concerns their country.

The principality of Neuchatel and Vallengin is divided into a certain number of diſtricts, each of which has its criminal court of juſtice. The great circumſpection obſerved in the judicial proceedings may ſometimes favour the eſcape of the criminal; but the few inſtances of atrocious crimes prove that this humane caution is no encouragement to tranſgreſſors, and is a ſtrong preſumption of the general good morals which prevail among the people. In a word, perſonal liberty is almoſt as tenderly and as ſecurely protected by the laws of this country, as by thoſe of our own invaluable conſtitution.

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When the criminal is arreſted, he is immediately brought to trial; after which the ſentence is read to him in priſon. The next morning he again appears before his judges, aſſembled in the open air; the former proceedings on the trial are read, and the judges once more deliver their opinion. In capital ſentences, the governor is inſtantly acquainted with the circumſtances of the crime, and if he does not remit or ſoften the puniſhment, the ſentence is immediately executed. I am concerned to add, that *torture* (though ſeldom uſed) is not abſolutely aboliſhed.

Such are the general outlines of this remarkable conſtitution, by which the liberties of the people are as well, and perhaps better, ſecured than in the democratical cantons; for although the moſt deſpotic prince in Germany is ſovereign, his power is exceedingly limited. Among the ſtriking circumſtances which characteriſe this government, muſt be mentioned the very liberal encouragement given to ſtrangers who ſettle in the country. They enjoy every poſſible privilege of trade and commerce, and in no ſtate are fewer eſſential diſtinctions made between ſtrangers and natives. I have already obſerved to you the good effects of this enlarged policy on the population of Neuchatel and Vallengin; whereas a narrower and more contracted principle in ſome of the neighbouring Swiſs cantons, has occaſioned, and continues to occaſion, a very manifeſt decreaſe of inhabitants *.

LETTER XLVIII.—*Route from Pontarlier to Neuchatel.—Valley of Travers.—Anecdotes of Rouſſeau.—Iſle of St. Peter in the Lake of Bienne.*

Neuchatel, October 1785.

I NOW write to you a ſecond time from Neuchatel, at the interval of nine years ſince the date of my former letters; on the preceding occaſion I went from Granſon to Neuchatel; to-day I came from Pontarlier, a ſmall town in Burgundy.

From Pontarlier I aſcended gently by the ſide of the Dou, here a ſmall rivulet bubbling in the vale, quitted that ſtream and paſſed under a bold rock, on which ſtands the caſtle of Joux forming a pictureſque landſcape; it has a garriſon of invalids, and commands the narrow valley leading into Burgundy. Near it the road is divided into two branches; one leads directly to Joigne, and the other to Neuchatel. In about two hours we obſerved a ſtone, which ſeparates France from the county of Neuchatel. Soon afterwards we mounted an eminence, looked down upon the beautiful valley of Travers, and deſcended to a narrow paſs, which is guarded by a chain faſtened to the rock, bearing the date of 1722. Hiſtory, however, makes mention of a ſimilar chain at a much earlier period, particularly in 1476, when Charles the Bold, having ineffectually attempted to force the paſs, marched with his army to Joigne, and beſieged Granſon, where he was defeated.

Having deſcended to St. Sulpice, I viſited the ſource of the Reus, which iſſues at the foot of a rock in five copious ſprings, that form a large body of water, and turn ſeveral mills. I was accompanied to this pictureſque ſpot by an inhabitant of Fleurier, a neighbouring village. Speaking of the increaſe of induſtry in theſe parts, he informed me that thirty years ago Fleurier contained only three watch-makers, whereas at preſent above a hundred were ſettled in that place. He added, that notwithſtanding the conſtant influx of ſtrangers, hands were ſtill wanting for the numerous trades which are carried on with great ſucceſs in theſe parts.

* Of all the ſtates of Switzerland, Neuchatel has hitherto alone eſcaped the revolutionary vortex; a happy circumſtance, which it owes to the neutrality of its ſovereign the King of Pruſſia.

I continued along the high road leading to Neuchatel, through the beautiful and romantic valley of Travers, watered by the Reus, abounding in the moſt fertile paſtures, bordered by hills gently riſing from the banks of the river, and beautifully ſprinkled with wood. I paſſed through many neat villages, particularly Bouvereſſe, Couvet, Travers, and Noirague, where I quitted the valley, and entered the narrow paſs of *Cluſette*. From hence the road traverſes an abrupt and woody country along the ſides of precipices, the Reus rolling beneath in a deep channel. At the ſmall village of Brot, a pleaſing view of the lake of Neuchatel and the adjacent country opened gradually, as I deſcended and joined the road leading from Granſon to Neuchatel.

I did not quit the valley of Travers without paying a viſit to Moitier Travers, rendered memorable by the reſidence of Rouſſeau, who being driven firſt from Geneva, and afterwards from Yverdun by the government of Bern, found a refuge from civil and theological perſecution in this ſecluded valley, under the protection of Lord Keith, governor of Neuchatel. The dwelling-houſe of this ſingular man is a ſmall wooden building at the further extremity of the village, near the road which leads to Fleurier, and is now occupied by Mr. Martinet, mayor of the valley, a ſenſible old gentleman, who lived in habits of great intimacy with the philoſopher of Geneva.

The room chiefly occupied by Rouſſeau is a ſmall bed-chamber, which, out of reſpect to his memory, is left in the ſame ſtate as when he lived there. In a corner near the window is a kind of receſs formed by two book-caſes, and a ſimple deal plank reaching from one book-caſe to the other, on which he was accuſtomed to write. Rouſſeau admitted company into this room; but ſuffered no one to enter the receſs, from a ſuſpicion that they would overlook his papers. He uſed alſo to frequent a ſmall open gallery in the front of the houſe, encloſed at the extremities with planks, in which were peep-holes for the purpoſe of reconnoitring thoſe perſons who came to viſit him, that he might give his orders whether they ſhould be admitted or refuſed. Here he walked and read.

During his reſidence at Moitier, from 1762 to 1765, by frequently ſauntering into the fields and on the neighbouring mountains, he acquired a taſte for the ſtudy of botany, which he never intermitted, and always ſtyled his peculiar delight. During this period of his life, he iſſued from this ſecluded corner his *Lettre à l'Archevêque de Paris*, his *Lettres Ecrites de la Montagne*, and ſome other works; in which he diſplays thoſe wonderful powers of invention and deſcription, that faſcinating yet declamatory eloquence, that glow and animation of ſtyle, that fondneſs for paradoxes, that reverence for the ſcriptures, and yet thoſe perverſe doubts of their authenticity, thoſe liberal yet levelling principles of government, that keenneſs of irony, and that motley mixture of ſophiſtry and argument, which chequer and characteriſe all his writings.

Rouſſeau, on his arrival at Moitier, appeared in a common dreſs, but ſoon afterwards aſſumed an Armenian habit; either, as he himſelf alleged, becauſe that mode of clothing was adapted to the diſorder with which he was afflicted; or from that affectation of ſingularity which ſeems to have marked his character in every period of his life. Through Lord Keith's interceſſion, the King of Pruſſia offered Rouſſeau a penſion of 100l. *per annum*, which he declined, from his averſion to the leaſt ſhadow of dependence; preferring to copy muſic for his livelihood, rather than accept an obligation even from ſo great a ſovereign; and he uſed to boaſt that he could daily earn a guinea by that occupation.

Rouſſeau took his repaſt uſually alone; though he would ſometimes, but very rarely, accept an invitation from M. Martinet to dinner or ſupper, particularly when Lord Keith paſſed a week at Moitier Travers for the purpoſe of viſiting him. On theſe occaſions he was remarkably agreeable and lively; being naturally of a ſocial diſpoſition, he converſed

verſed with great ſpirit and animation, and yet with as much correctneſs as if dictating for the preſs.

Rouſſeau ſeems to have truſted entirely to his own judgment; being ſo impatient of contradiction, that he would never liſten to the admonitions of his friends, and ſeldom aſked advice with an intention of adopting it. Having finiſhed his celebrated Letter to the Archbiſhop of Paris, he read it to M. Martinet, and demanded his advice relative to the publication. The mayor, though ſtruck with the fire and ſpirit of the raillery, yet could not avoid repreſenting to him that his letter, however forcibly written, would never make a convert of the archbiſhop; that he would only be entangled in endleſs controverſies, and draw upon himſelf much obloquy and ill-will: "Your advice," returned Rouſſeau calmly, "is a little too late; it is already publiſhed:" and immediately preſented to him a printed copy of the letter which he had juſt read to him in manuſcript.

He derived from nature an extreme ſenſibility which bordered upon weakneſs; he ſeems to have wanted one proof of a great mind, that of receiving an obligation, and to have poſſeſſed ſuch pride and ſoreneſs of temper as rendered it impoſſible to ſerve him; for he frequently conſtrued a benefit into an injury. His extreme ſenſibility was irritated and augmented by a troubleſome and painful diſorder, which preyed upon his conſtitution, and at times rendered him unfit for ſociety. To this complaint, in conjunction with that mercileſs perſecution which he repeatedly endured ſhould be attributed in a great meaſure the recluſeneſs of his life, and that ſuſpicious miſtruſt which occaſionally bordered upon madneſs.

Rouſſeau had now continued three years at Moitier, greatly delighted with his ſituation, when an unexpected event induced him to quit a retreat, in which he wiſhed to paſs the remainder of his days. This event has been variouſly related. According to ſome authors, the populace, incited by the miniſter of the pariſh, in conſequence of the ſcepticiſm diſplayed in his *Lettres Ecrites de la Montagne*, aſſembled in crouds, broke the windows of his houſe, forced open the door, and entering his bed-chamber, treated him with ſuch violence, that he eſcaped with difficulty, and, not to become a martyr to his opinions, quitted the country. According to others, neither the miniſter nor the natives were exaſperated againſt him; but his houſekeeper, the ſame perſon whom he afterwards married, diſguſted with the inhabitants, broke the windows, and perſuading her maſter that he was in danger of being aſſaſſinated, induced him to quit Moitier the next morning: as a proof of this aſſertion, they affirm that one of the ſtones found in the apartment was too large to have paſſed through the broken panes of glaſs.

The truth, however, ſeems to be, that his pride and ſuſpicious temper rendered him obnoxious to many of the inhabitants; the ſcepticiſm and infidelity in his *Lettres Ecrites de la Montagne* raiſed a party againſt him; ſome of the people occaſionally inſulted him; the miniſter of the pariſh ſummoned him before the conſiſtory; he declined appearing; the council of ſtate of Neuchatel propoſed condemning the above-mentioned publication, and even applied to the King of Pruſſia for that purpoſe. Frederic, in an anſwer which does honour to his head and his heart, while he permitted them to uſe any precautions which might tend to prevent the diffuſion of ſceptical opinions, yet wiſely forbade all perſecution, and enſured to Rouſſeau a ſecure retreat at Moitier under his immediate protection. Before this anſwer was returned, ſome of the populace, intoxicated with liquor, threw ſtones againſt Rouſſeau's windows with ſuch violence as to penetrate into the kitchen, and to tear off the plaiſter from the walls; but none of theſe ſtones did, or could enter his bed-chamber, as that apartment was ſituated on the other ſide of the houſe. This violence, however, exaggerated by the real or pretended terrors

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of his houſekeeper, was ſufficient to alarm Rouſſeau: on the next morning he retired from Moitier, and took refuge in the iſland of St. Peter.

The iſland of St. Peter, ſometimes called the iſland of La Motte, and ſometimes Rouſſeau's iſland, lies towards the ſouthern extremity of the lake of Bienne. To this delightful ſpot I made an agreeable excurſion on the 4th of October 1786, in company with the Rev. M. de Meuron, of Neuchatel, and three Engliſh gentlemen. We quitted Neuchatel in the morning; paſſed through St. Blaiſe and the diſtrict of Landeron, and embarked at Neuville, a ſmall town, which, like Bienne, acknowledges the Biſhop of Baſle for its liege lord, but poſſeſſes ſuch rights and immunities as render it an independent republic; it contains about twelve hundred inhabitants. The fine weather, and the clearneſs of the air, enabled us to enjoy the mild beauties of the view as we ſailed to the iſland. To the ſouth-weſt we diſcerned Neuville and its ancient caſtle, and to the ſouth-eaſt admired the Julimont, an inſulated hill adorned with woods of oak, the ſummit of which is frequently viſited by travellers for the beauty of the proſpect; and its name has been derived by fanciful antiquaries from Julius Cæſar. At the extremity of a rocky and woody promontory, which ſtretches from the foot of the Julimont into the lake, ſtands the caſtle of Cerlier, and beyond, at ſome diſtance, the fertile plains watered by the Thiele.

We landed on the ſouth ſide of St. Peter's iſland, and walked through an agreeable meadow ſkirted with vineyards to a large farm-houſe, which was formerly a convent *, and is now inhabited by the ſteward of the general hoſpital at Bern, to which the iſland belongs.

The iſland is about two miles in circumference, and richly wooded with various ſhrubs and trees, particularly with large oaks, beech, and Spaniſh cheſnuts. Its ſurface is gently undulating; the ſouthern ſhore, covered with herbage, forms a gradual ſlope to the lake; the remaining borders are ſteep and rocky: in a few places their ſummits are thinly fringed with ſhrubs; in others, their perpendicular ſides are clothed to the water's edge with hanging woods. The views from the different parts of the iſland are beautiful and diverſified; that to the north is the moſt extenſive and pleaſing. It commands the lake of Bienne, which is of an oval form; its cultivated borders ſpotted with villages and caſtles, with the towns of Nidau and Bienne ſtanding on the farther extremity. Agreeable walks are carried through the woods, and terminate at a circular pavilion placed in the centre of the iſland. During vintage particularly, and on Sunday, which is the uſual day of feſtivity, the iſland is filled with parties who take refreſhments at the farm-houſe, ſtray about the woods, or dance in the circular building, and animate theſe romantic but ſolitary ſcenes.

Rouſſeau occupied an apartment in the farm-houſe, the only dwelling in the iſland. He lived with the ſteward and his family, who are the preſent inhabitants. The woman informed me, that he paid for his board and lodging forty ſhillings a month; that he uſually roſe at ſix, dined with the family at twelve, and after a ſlight ſupper retired to reſt at nine. She added, he was extremely cheerful and agreeable; converſed with the family with the greateſt eaſe and complacency, and conformed to their hours and manner of living; he amuſed himſelf entirely in wandering about the woods, and ſearching for plants, which he uſed to explain to them with ſingular ſatisfaction. Rouſſeau mentions his reſidence in this delightful iſland with the higheſt terms of rapture, and with his uſual proneneſs to exaggeration.

* It was ſeculariſed at the reformation.

" I was permitted to remain only two months in this delightful iſland; but I could have paſſed there two years, two centuries, all eternity, without ſuffering a moment's *ennui*, although my whole ſociety conſiſted of the ſteward and family, good but plain people. I eſteem theſe two months the moſt happy period of my life; and ſo happy, that I could have paſſed my whole exiſtence without even a momentary wiſh for another ſituation *."

If we examine in what this *extreme* happineſs conſiſted, he himſelf informs us, that his principal occupation was in *doing nothing*. He did not even unpack his books, and could ſcarcely prevail on himſelf to read, much leſs to anſwer any letter. He aſſiſted the ſteward and his ſervants at work in the vineyards and fields; ſauntered about the woods, and attached himſelf entirely to botany. He propoſed to write a *Flora Petrinſularis*, or a deſcription of the plants in the iſland; adding on this head, that as a German had publiſhed a book on the kernel of a lemon, in the ſame manner he would compoſe a treatiſe on each ſpecies of graſs, moſs, and lichen, and would not leave the moſt minute particle of vegetation undeſcribed. He made occaſional excurſions on the lake, ſometimes coaſting the ſhady banks of the iſland, at other times ſuffering the bark to float without direction: then, to uſe his own expreſſions, " he would lie down in the boat, look up to the heavens, and continue in that poſture for ſeveral hours, enjoying a thouſand unconnected and confuſed, but delicious reveries." He frequently rowed to a ſmall ſandy iſland, which he deſcribes as a moſt beautiful ſpot. It was one of his great amuſements to ſtock it with rabbits; and as he was conveying, with *great pomp*, the ſteward's family to be preſent at the foundation of this little colony, he deſcribes himſelf as *equally elated with the pilot of the Argonautic expedition*.

From theſe ſimple avocations and *every day* occurrences, which Rouſſeau relates with that enthuſiaſm and thoſe ſentiments peculiar to himſelf, he draws the following reflections: " I have remarked, during the viciſſitudes of a long life, that the moſt delightful enjoyments and moſt rapturous pleaſures are not, upon recollection, thoſe with which I am moſt affected. Such fleeting moments of paſſion and delirium, however, rapturous, are, from their very nature, but thinly ſcattered in the path of life. They are too rare and rapid to conſtitute a fixed ſtate; and the happineſs which my heart regrets is not compoſed of fugitive inſtants, but conſiſts in a ſimple and permanent ſtate, without rapture, the duration of which increaſes the charm, till it finds ſupreme felicity."

This ſtate he deſcribes himſelf as poſſeſſing during his ſhort continuance in the iſland of Bienne; a longer reſidence would probably have diſſolved the charm, which was raiſed by his own ſanguine imagination. That reſtleſſneſs of temper, which is uſually the attendant of great genius, and was his inſeparable companion, would have probably returned, and embittered the delightful calm deſcribed with ſuch rapture and ecſtaſy. But he had not time to become diſguſted with his ſituation; for the ſame intolerant ſpirit which had hitherto purſued him, followed him even to this ſequeſtered iſland: he had ſcarcely paſſed two months before he received an order from the government of Bern to depart from their territories. Rouſſeau was ſo ſhocked at this unexpected command, that he petitioned to be impriſoned for life, only requeſting the uſe of a few books, and occaſional permiſſion to walk in the open air. Soon after this extraordinary requeſt, which ſhews the extreme agitation of his mind, he reluctantly quitted the iſland. It does not fall within the compaſs of a letter to dwell upon this ſingular man through the ſubſequent events of his life, or even accompany him to England, where, notwithſtanding the moſt diſtinguiſhed reception, the ſame perverſeneſs of diſpoſition, and the

* See Promenade V.

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ſame exceſſive delicacy rendered him no leſs unhappy, than when he was under the preſſure of real calamities, and expoſed to reiterated perſecutions.

I am, &c.

LETTER XLIX.—*Environs of Morat.—Mount Vuilly.*

IN our way to Morat and Avenche we croſſed the river Thiele, which iſſues from the lake of Neuchatel, diſcharges itſelf into that of Bienne, and ſeparates the principality of Neuchatel from the canton of Bern.

Morat is a bailliage belonging to Bern and Friburgh: the reformation was introduced in 1530, by the majority of voices, in preſence of deputies from Bern and Friburgh. The free ſpirit of the Swiſs governments is in no inſtance more remarkably apparent, than by the mode which they obſerved in embracing or rejecting the reformation: in many other towns beſide Morat, the queſtion was put to the vote, and the minority generally ſubmitted, with perfect acquieſcence to the deciſion of the greater number.

Morat ſtands pleaſantly upon the edge of a ſmall lake, about ſix miles long, and two broad; in the midſt of a well-cultivated country. The lakes of Morat and Neuchatel are parallel to each other, and ſeparated only by a ridge of hills; the former is the moſt elevated; for it diſcharges itſelf by means of the river Broye, into the lake of Neuchatel. According to Le Luc, it is fifteen French feet above the level of that of Neuchatel. Both theſe lakes, as well as that of Bienne, formerly extended much farther than their preſent limits; and, from the poſition of the country, appear to have been once united.

Mr. Pennant informs me, that "the vaſt fiſh called the *ſilurus glanus*, or the *ſaluth*, which frequents the lakes of Morat and Neuchatel, has not been caught here in the memory of man. It is well deſcribed, and finely engraven, in Dr. Bloch's Hiſtory of Fiſhes, vol. i. 194. tab. 34. In the time of Geſner two were taken, one of which was eight feet long; but ſome have been ſo large as to weigh ſix hundred pounds. It is an eel-ſhaped fiſh, very ſmooth, round, and thick, with a great head. The mouth is furniſhed with four ſhort and two long whiſkers. It is very inactive and ſlow in its motions, and loves the deep and muddy parts of the lakes. They are found in many of the great freſh waters of Europe, and abundantly in the Volga."

On my ſubſequent expeditions into theſe parts, I examined with greater attention the environs of Morat, during ſeveral days, which I paſſed moſt agreeably at Coujouvax, a ſeat belonging to the Count of Dieſbach, and at Grens with M. de Garville, a French gentleman, who, attached to the beauties of this delightful country, has built a villa in a pleaſing ſituation near the banks of the lake of Morat, where he comes every year from Paris to paſs the ſummer. By theſe families I was received without any other introduction than as being the author of the Letters on Switzerland, and with that frankneſs and cordiality ſo flattering to a ſtranger. I found the environs of Morat, though not ſo wild and romantic as many other parts of Switzerland, yet extremely deſirable for a conſtant reſidence.

I made ſeveral excurſions acroſs the lake to an inſulated ridge between the lakes of Neuchatel and Morat, and enjoyed many delightful points of view. Of theſe various proſpects the moſt remarkable is from the ſummit of Mount Vuilly, where I ſeated myſelf on the edge of an abrupt precipice. I looked down upon the lakes of Bienne, Morat, and Neuchatel; obſerved the Broye entering the lake of Morat, iſſuing from thence, and winding through a marſhy plain into the lake of Neuchatel; the Thiele

flowing from the lake of Neuchatel, and haſtening to fall into the lake of Bienne; the fertile and variegated countries encircling thoſe bodies of water, and the grounds riſing in regular gradations from plains to alps. But what renders this charming ſpot more particularly ſtriking is, that it is perhaps the only central point from which the eye can at once comprehend the vaſt amphitheatre formed on one ſide by the Jura, ſtretching from the environs of Geneva as far as Baſle, and on the other by that ſtupendous chain of ſnowy alps, which extends from the frontiers of Italy to the confines of Germany, and is loſt at each extremity in the immenſe horizon.

Impreſſed with this ſublime view, I caſt my eyes downwards over that dead and extenſive moraſs through which the Broye ſerpentines; and exclaimed in the language of poetry, which knows how to animate the dulleſt objects:

Quittons les bois et les montagnes
*Je vois couler la Broye * à travers les roſeaux.*
Son onde partagée en différens canaux
S'egare avec plaiſir dans de vertes campagnes,
Et forme dans la plaine un labyrinthe d'eaux.
Rivière tranquille et cherie
Que j'aime a ſuivre tes détours!
Ton eau ſilencieuſe en ſon paiſable cours,
Preſente à mon eſprit l'image de la vie;
Elle ſemble immobile, et s'ecoule toujours,

LETTER L.—*Battle of Morat.—War between the Swiſs and Charles the Bold, Duke of Burgundy.—Its conſequences.*

MORAT is celebrated for the obſtinate ſiege ſuſtained againſt Charles the Bold, Duke of Burgundy, which was followed by the battle of Morat, fought on the 22d of June 1476. In this famous engagement the Duke was routed, and his whole army almoſt deſtroyed, by the confederate troops of Switzerland. Not far from the town, and adjoining to the high road, a monument of this victory ſtill remains: it is a ſquare building, filled with the bones of the Burgundian ſoldiers who were ſlain at the ſiege and in the battle †. To judge from the quantity of theſe bones, the number of the

* From a poem entitled "*La Vue d'Anet.*" I have followed the example of M. Sinner, in his Voy. Hiſt. et Pol. de la Suiſſe, who ſubſtitutes the Broye for the Thiele, to which the lines in the original are applied.

† In February 1798 the Berneſe troops, under the command of General d'Erlach, aſſembled in the field around this oſſuary, to defend their country againſt the invaſion of the French. General Brune recommended d'Erlach to ſurrender Morat. "My anceſtors," replied d'Erlach, "never ſurrendered; were I baſe enough to entertain ſuch a thought, this monument of their valour," pointing to the oſſuary, "would deter me." Happy might it have been for Switzerland, had the government of Bern been actuated with the ſame ſpirit as their general.

On the 3d of March the French troops demoliſhed this oſſuary, and the Directory thought the demolition of ſufficient importance to be communicated to the Council of Five Hundred:

"On the ſame day in the evening, the Berneſe evacuated Morat, a town famous for the battle gained over the Burgundians in 1476, and for the manner in which the bones of the vanquiſhed were preſerved. A trophy ſo inſulting to the French nation could not fail to be deſtroyed; and, what is very remarkable, it was deſtroyed by the battalions of the Cote d'or, on the very day which was the anniverſary of the battle of Morat. A tree of liberty was immediately planted in the place of this monument, which the oligarchies pointed out beforehand, as deſtined to become a ſecond time the tomb of the French." Meſſage from the Executive Directory to the Council of Five Hundred, March 13. But this coincidence of circumſtances was fabricated for the event, as the battle of Morat was not on the 3d of March, but on the 22d of June.

According alſo to the French accounts, the colours taken from the Duke of Burgundy, at the battles of Morat and Vancy, were found in the arſenal of Solcure, and ſent to Paris. *Moniteur, 16th Germinal (5th April.)*

ſlaughtered

ſlaughtered muſt have been conſiderable. Among ſeveral inſcriptions in the Latin and German languages relative to that memorable victory, I tranſcribed one on account of its conciſeneſs:

Deo Opt: Max:
Caroli Inclyti et Fortiſſimi
Burgundiæ Ducis Exercitus
Muratum obſidens ab Helvetiis
Cæſus hoc ſui Monumentum reliquit.
Ann: 1476.

This war, which Charles the Bold carried on againſt the Swiſs with a temerity peculiar to himſelf, forms a remarkable æra in the hiſtory of this country, and was attended with ſome extraordinary circumſtances. From the time of the famous revolution in 1306, which gave riſe to the Helvetic confederacy, to the end of the following century, the Swiſs republics deprived the Houſe of Auſtria of all its territories ſituated in Switzerland, and continued in poſſeſſion notwithſtanding the various attempts of the different Dukes to recover their loſt domains. But of all the Princes of that Houſe, Sigiſmond the Simple, Archduke of Auſtria, of the branch of Tyrol, was more particularly engaged in hoſtilities with the Swiſs cantons, and their allies; for his hereditary dominions in Suabia and Alſace bordering upon Switzerland, induced him to enter more frequently into theſe diſpūtes, than the other branch, which was in poſſeſſion of the Imperial throne.

In the courſe of theſe hoſtilities, Sigiſmond was compelled to cede a conſiderable part of his territories to the Swiſs republics; particularly the rich country of Thurgau to the ſeven cantons, which at that period compoſed the Helvetic league *. Inflamed by theſe repeated loſſes, and the humiliating conditions of peace he was conſtrained to accept in 1468, he endeavoured to engage ſome of the neighbouring powers in a confederacy againſt the Swiſs cantons. Having firſt ineffectually applied to Louis the Eleventh, King of France, he at length addreſſed himſelf to Charles the Bold, Duke of Burgundy.

Charles having ſucceeded to the poſſeſſion of Franche Comté, Burgundy, Artois, and Flanders, together with the greater part of the United Provinces, poſſeſſed as ample revenues, and as extenſive territories, as the moſt potent ſovereign of his time. Magnificent, impetuous, and enterpriſing, he neglected no opportunity of aggrandizing his power, and ſet no bounds to the projects of his reſtleſs ambition. He formed the plan of erecting Burgundy into a monarchy, and already in imagination appropriated to himſelf Lorraine and part of Switzerland, which he propoſed to annex by conqeſt to his hereditary dominions.

A Prince of ſuch a character being naturally diſpoſed to undertake any war that might advance his ambitious ſchemes, received with eagerneſs the propoſitions of Sigiſmond, flattered that credulous Prince with the hopes of receiving in marriage his daughter Mary, heireſs of his extenſive dominions, and prevailed upon him, by the loan of eighty thouſand florins, to ſurrender, Sundgau, Alſace, Briſgau, and the four foreſt-towns; promiſing to reſtore them upon the repayment of that ſum. By this alliance Sigiſmond acquired a ſum of money to aſſiſt him in his preparations againſt the Swiſs, protected, as he thought, his hereditary dominions from their enterpriſes, and ſecured a powerful ally againſt the ancient enemies of his family. The reverſe, however, happened; for, by a ſtrange fatality, this league, which was intended to cement the union of the two

* Bern obtained the co-regency of Thurgau at the peace of Arau, 1712.

Princes,

Princes, ſerved only to divide them; and occaſioned the firſt perpetual alliance between the Swiſs cantons and a Prince of the Houſe of Auſtria.

Charles, upon the concluſion of this treaty, informed the cantons, that he had taken Sigiſmond under his protection, and would defend him to the utmoſt of his power. Meanwhile, the bailifs, whom he placed over his newly-acquired territories in Alſace, oppreſſed the people, laid embargoes upon the commerce of Mulhauſen, and withheld the rents of the eſtates belonging to the Swiſs in Sundgau and Alſace.

Theſe grievances being laid before Charles in an embaſſy which Bern diſpatched to his court, in the name of the confederate cantons, the Duke received it with haughtineſs; and, after compelling the deputies to kneel while they delivered their remonſtrance, diſmiſſed them without an anſwer. This diſdainful treatment was ill brooked by a free people, unaccuſtomed to crouch before the inſolence of power; and their juſt indignation was ſtill more inflamed by the artful policy of Louis the Eleventh, who, jealous of the Duke of Burgundy's power, entered into a defenſive alliance with the Swiſs republics, in order to counteract his deſigns.

But Louis ſtill further ſtrengthened the Swiſs, by effecting a reconciliation between them and Sigiſmond, who had no ſooner ſurrendered to Charles, Sundgau, Alſace, and the other dominions, than he became ſenſible of his error. The Duke of Burgundy not only oppreſſed his new ſubjects, but ſeemed determined, even ſhould the eighty thouſand florins be repaid, to keep poſſeſſion of theſe conditional territories, and did not appear inclined to fulfil the promiſe of beſtowing his daughter upon the Archduke. Induced by theſe conſiderations, Sigiſmond accepted the mediation of Louis, threw himſelf under the protection of the Swiſs, and concluded the famous treaty which was confirmed at Lucern in 1474, called the *hereditary union;* an appellation appropriated to the treaties between the Swiſs and the Houſe of Auſtria. Sigiſmond renounced all right to the provinces which the Swiſs had conquered from the Houſe of Auſtria; the two contracting parties formed a defenſive alliance, and engaged to guarantee each other's territories. Thus the Swiſs, after depriving Sigiſmond of all his poſſeſſions in their country, engaged to ſupport his title to thoſe very provinces, which he had mortgaged in order to ſtrengthen his arms againſt them, and Sigiſmond accepted a guarantee from the moſt inveterate enemies of his family.

This treaty, which entirely changed the policy of the Swiſs republics, was ſolely effected by the artful intrigues of Louis the Eleventh: the jealouſy of that deſigning monarch turned into another channel the vaſt preparations of the Duke of Burgundy; preparations which might have been attended with more ſucceſs had they been directed againſt France.

Charles, too late perceiving the imprudence of his conduct towards the Swiſs republics, in vain exerted all his efforts to engage them in a neutrality. They rejected his propoſals with firmneſs, prepared with their uſual vigour for a war, which now appeared inevitable, and even advanced the eighty thouſand florins to Sigiſmond, who demanded the reſtitution of his lands, which the Duke of Burgundy evaded under various pretexts. The Duke having concluded a ſeparate peace with Louis, turned his whole force againſt the Swiſs, entered their country with an army of ſixty thouſand men, and, laying ſiege to Granſon, carried it by aſſault. But his ſucceſs ended there: for at the ſubſequent battles of Granſon and Morat, he was totally defeated, and his attempts upon Switzerland entirely fruſtrated *. Nevertheleſs, his reſtleſs and ambitious ſpirit ſtill unſubdued,

* Charles entered Switzerland confident of ſubduing that country. The effect which this unexpected and humiliating diſappointment had upon his ſpirits and conſtitution, is related by Philip de Comines, with

unſubdued, impelled him to attack the Duke of Lorraine. But that Prince, having engaged a body of eight thouſand Swiſs, obtained a complete victory near Nancy; Charles was ſlain in the engagement *, and his death terminated this bloody war; in which the Swiſs gave diſtinguiſhing proofs of invincible valour, and ſpread the fame of their military virtues throughout all Europe, but obtained no ſolid advantage †. In fact, the principal and almoſt ſole benefit accrued to Louis the Eleventh; as, by the death of Charles, he was not only releaſed from a dangerous and enterpriſing rival, but alſo annexed the rich provinces of Burgundy and Artois to the crown of France.

But although the immediate advantages which the Swiſs derived from the death of Charles were unimportant; yet the conſequences operated conſiderably on their future politics. Mary of Burgundy, the only ſurviving child and heireſs of Charles, married the Archduke Maximilian, eldeſt ſon of the Emperor Frederic the Third, and afterwards Emperor himſelf. By this marriage the Houſe of Auſtria acquired poſſeſſion of the Netherlands, and having frequent diſputes with France, the alliance of the Swiſs was ſtrenuouſly courted by both parties. Thus this country, being ſecured from all invaſions, acceded, as occaſion offered, to the two rival powers, and aſſiſted each party as the intrigues, or rather as the ſubſidies of the one or the other prevailed.

Theſe intrigues gave riſe to different alliances, contracted with the Houſe of Auſtria, the Kings of France, the Pope, the Dukes of Savoy and Milan. Not to enter more minutely into their hiſtory, I ſhall only obſerve in general, that hitherto the Swiſs acted with great diſintereſtedneſs in all their treaties, and never took the field but with a view to ſecure their liberties, or to drive their enemies from Switzerland. But about the period of the Burgundian war, the ſubſidies wich they obtained from Louis the Eleventh, taught them the diſgraceful arts of mercenary politics; as the rich plunder which they gained from the Duke of Burgundy gave, in ſome meaſure, the firſt taint to their original ſimplicity of manners; till, at length, *Swiſs venality* has become a proverbial expreſſion.

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his uſual minuteneſs, in his Memoirs addreſſed to Angelo Cattho, Archbiſhop of Vienne in Dauphiné. His account is curious, and will give ſome idea of the violent and impetuous character of Charles:

"His concern and diſtraction for his firſt defeat at Granſon was ſo great, and made ſuch deep impreſſion on his ſpirits, that it threw him into a violent and dangerous fit of ſickneſs; for whereas before his choler and natural heat was ſo great that he drank no wine, only in the morning he took a little titſane, ſweetened with conſerve of roſes, to refreſh himſelf; this ſudden melancholy had ſo altered his conſtitution, he was now forced to drink the ſtrongeſt wine that could be got, without any water. And, in order to draw the blood from his heart, ſome burning tow was put into the cupping-glaſſes, and applied to his ſide. But this, my Lord of Vienne, you know better than I; for your Lordſhip attended on him during the whole courſe of his illneſs, and ſpared no pains that might contribute to his recovery; and it was by your perſuaſion that the Duke was prevailed upon to cut his beard, which was of a prodigious length. In my opinion his underſtanding was never ſo perfect, nor his ſenſes ſo ſedate and compoſed after this fit of ſickneſs as before."

Uvedale's Tranſ. Vol. I. p. 423.

* The death of Charles at the battle of Nancy was attended with ſome very extraordinary circumſtances; for the particulars of which ſee the curious account extracted from Philip de Comines, and the Chronique Scandaleuſe of John de Troyes, in Wraxal's intereſting Memoirs of the Kings of France of the Houſe of Valois.

† "And what," ſays Comines, "was the occaſion of this war? It was begun on account of a waggon of ſheep-ſkins, which the Lord of Romont took from a Swiſs, who was paſſing through his territories. If God had not abandoned the Duke, it is not probable, that he would have put himſelf into ſo much danger for ſo trifling a circumſtance; conſidering the offers that were made to him; againſt what ſort of people he was engaged; and from whence neither profit nor glory could accrue to him. For the Swiſs were not in ſuch repute as they are in at preſent, and nothing could be poorer; inſomuch that one of their ambaſſadors, as he was endeavouring to prevent the Duke from engaging in that war, remonſtrated, that he could gain nothing by attacking them; for their country was ſo barren, that the ſpurs of his troops and the bits of their horſes were worth more than could be furniſhed by all the Swiſs territories, in caſe they were conquered."

LETTER

LETTER LI.—*Antiquities of Avenche.*

FEW ancient towns have occaſioned more controverſy among antiquaries, or given riſe to ſuch a variety of conjectures concerning their origin and importance, as Avenche, the principal burgh of a bailliage in the Pays de Vaud. Some contend that it was the capital of all Helvetia, becauſe Tacitus calls it *Aventicum gentis caput:* while others have endeavoured to prove, that by this expreſſion the hiſtorian intended only to denote the capital town of its particular diſtrict. Agreeably to ſome accounts, the city was built, and a Roman colony founded by Veſpaſian; but with more probability, according to others, it was only repaired and beautified by Veſpaſian, after it had been laid waſte, and almoſt ruined, by Vitellius.

Without entering into dry and unintereſting diſcuſſions, it was formerly a very conſiderable town, and under the dominion of the Romans, as appears not only from ſeveral mile-ſtones, found in many parts of the Pays du Vaud, moſt of which are numbered from *Aventicum*, as the principal place of reference; but more particularly from the preſent ruins. I ſhall ſlightly mention a few of theſe ruins, merely to ſhew you, that the inhabitants do not boaſt of their antiquity without ſufficient evidence.

We traced the ſite of the ancient walls, which appear to have encloſed a ſpace near five miles in circumference. The preſent town occupies but a very inconſiderable part of this ground; the remainder is covered with corn-fields and meadows. One of the ancient towers ſtill exiſts: it is a ſemicircular building, with the convex ſide towards the town.

We next examined a coarſe moſaic pavement, diſcovered ſome years ago in ploughing a field, and now in a ſad ſtate of dilapidation, encloſed by a barn, which is let to ſome peaſants; the ignorant occupiers employ it as a drying-houſe for tobacco, and ſuffer ſtrangers to take away ſpecimens. Even the government of Bern was ſo inſenſible of its value, that they permitted the Count de Caylus to remove a pannel, containing the figures of two Bacchanalians.

This moſaic was the floor of an ancient bath, and is about ſixty feet in length and forty in breadth; the general form is perfect; and, although ſeveral parts are broken and loſt, yet from the preſent remains the configuration of the whole may be eaſily traced. It conſiſts of three compartments: thoſe at each extremity are regularly divided into fifteen octagons, eight ſmall ſquares, and ſixteen ſmall triangles. Five of theſe octagons in each compartment repreſented human figures in various attitudes, but chiefly Bacchanals; the remaining octagons were compoſed of three different patterns. The vacant parts between the octagons are filled with the ſmall ſquares; and towards the outward border with the ſmall triangles. The middle compartment is divided into oblong pannels, in the largeſt of which is an octagon bath of white marble, of about ſix feet in diameter, and a foot and a half deep; the ſides are ornamented with dolphins. Of theſe three compartments, one is almoſt perfect, the others much defaced. Each of the pannels is encircled with ſeveral borders prettily diverſified; and a general border encloſes the whole.

Schmidt, in his *Recueil d'Antiquités de la Suiſſe*, ingeniouſly conjectures from a *glory* which ſurrounds the head of Bacchus in this moſaic, that it was wrought during ſome part of the intervening age between Veſpaſian and Marcus Aurelius; becauſe that mark of divinity is not uſual upon any monuments of Roman antiquity before that period. The ſame kind of *glory*, he adds, is obſerved upon the head of Trajan in an ancient paint-

ing at Rome, upon that of Antoninus Pius on a medal, and on the arch of Conſtantine. He ſtrengthens this conjecture by further remarking, that the head dreſs of a Bacchanalian woman repreſented in this moſaic reſembles the head-dreſs on the medals of the Empreſs Plotina and Sabina *.

From thence we were conducted to the ruins of an ancient amphitheatre, within the walls of the bailif's garden. The general form and ſize of this building are tolerably perfect, as alſo parts of the brick walls which encloſed it. The diameter of the arena was, as well as we could judge by pacing it, about eighty yards, which muſt be an uncertain eſtimate, as a former bailif brought in a conſiderable quantity of earth, in order to plant fruit-trees; conceiving, I ſuppoſe, that good fruit was of more value than to be able to determine the preciſe extent of an ancient amphitheatre. Under a tower partly built of Roman materials, is a cell from which the animals were probably let looſe upon the arena. On the outſide are ſtill to be ſeen the remains of five dens; and the walls are adorned with ſeveral pieces of rude ſculpture dilapidated.

Not far from theſe ruins ſtands a column of white marble, about fifty feet in height, compoſed of large maſſes, nicely joined together without cement; near it lies a conſiderable fragment of defaced ſculpture, which ſeems to have once formed part of the portal belonging to a magnificent temple. At a ſmall diſtance from this column, in the high road, we obſerved a cornice of white marble ſculptured with urns and griffins; and as we walked through the town, we remarked ſeveral other maſſes of cornice, ornamented with ſea-horſes and urns, and ſome marble columns of beautiful proportions.

About a mile from Avenche, near the village of Coppet, on the other ſide of a little ſtream which ſeparates the canton of Friburgh from that of Bern, are the remains of a ſmall aqueduct, diſcovered about fifteen years ago, by the accidental fall of a ſand-hill. The outſide is formed of ſtones and mortar, and the inſide of red Roman cement; the vault of the arch may be about two feet and a half high, and one and a half broad. This aqueduct has been traced to the eaſt ſide of the town, and near the marble column. We were alſo informed that it extends to the tower of Gauſa, between Vevay and Lauſanne, and that, between Villarſel and Marnau, about four leagues from Coppet, an arch of nearly the ſame dimenſions is excavated in the ſolid rock.

When I viſited the ruins of Avenche in October 1786, I had much ſatisfaction in finding, that the bailif, M. Tcharner, paid great attention to theſe remains, and particularly to the moſaic. I could not avoid remarking to the bailif, who politely favoured us with his company, that every lover of antiquity muſt regret, his predeceſſors had not ſhewn the ſame taſte. Several excavations were lately made by Lord Northampton, who has a houſe in the neighbourhood, and have been continued at the expence of Bern. A coarſe moſaic pavement, a few fragments of walls rudely painted, and ſome trifling remains of ancient baths, are the only veſtiges of antiquity hitherto diſcovered.

LETTER LII.—*Town and Canton of Friburg.—Population.—Government.—Secret Chamber.*

FRIBURG was built in 1779, by Berchtold the Fourth, Duke of Zæringen, who endowed it with conſiderable privileges. Upon the extinction of the male line of the

* The curious reader will find in the *Recueil*, cited in the text, a very accurate deſcription and engraving of this moſaic.

houſe of Zæringen, in 1218 *, Ulric of Kyburg obtained the ſovereignty, in right of his wife Anne, ſiſter of the laſt duke Berchtold the Fifth. It came by marriage into the poſſeſſion of Eberhard Count of Hapſburg-Lauffenburg; who ſold it to his couſin Rodolph of Hapſburg, afterwards Emperor. During this period a continual rivalſhip ſubſiſting between Bern and Friburg, they were frequently engaged in hoſtilities: at length all differences were compoſed; and the two cities, in 1403, concluded a perpetual alliance.

Friburg continued under the dominion of the houſe of Auſtria, and was concerned in all the quarrels in which that family was engaged with the Swiſs republics, until the middle of the fifteenth century; when, by a very ſingular revolution, it renounced all allegiance to the Archduke Albert, and put itſelf under the protection of the Duke of Savoy. From this æra it occaſionally aſſiſted the cantons againſt the houſe of Auſtria; and in the war between the Swiſs and Charles the Bold, its troops had a ſhare in the victories of Granſon and Morat. Soon after the battle of Morat, it became a free and independent republic; and, in 1481, was admitted a member of the Helvetic confederacy.

The ſituation of the town, though not one of the moſt beautiful, is certainly one of the moſt pictureſque and wild in Switzerland. It ſtands partly in a ſmall plain, partly on bold acclivities, on a ridge of rugged rocks, half encircled by the river Sane; and is ſo entirely concealed by the circumjacent hills, that the traveller ſcarcely catches the ſmalleſt glimpſe, until he burſts upon a view of the whole town from the overhanging eminence.

The fortifications, which conſiſt of high ſtone walls and towers, encloſe a circumference of about four miles; within which ſpace the eye comprehends a ſingular mixture of houſes, rocks, thickets, and meadows, varying inſtantly from wild to agreeable, from the buſtle of a town to the ſolitude of the deepeſt retirement. The Sane flows in ſuch a ſerpentine courſe, as to form, within the ſpace of two miles, five angles between which the different parts of the current are nearly parallel to each other.

On all ſides the deſcent to the town is extremely ſteep, and in one place the ſtreets even paſs above the roofs of the houſes. Many of the edifices are raiſed in regular gradation like the ſeats of an amphitheatre; many overhang the edge of ſo deep a precipice, that on looking down, a weak head would be apt to turn giddy: and an unfortunate lover, repulſed in his ſuit, might inſtantly terminate his pains, by taking a leap from the parlour window, without the trouble of a journey to Leucate, or to the rocks of Meillerie.

But the moſt extraordinary point of view is from the Pont-neuf. To the north-weſt, part of the town ſtands boldly on the ſides and the piked back of an abrupt ridge; and from eaſt to weſt a ſemicircle of high perpendicular rocks is ſeen, whoſe baſe is waſhed and undermined by the winding Sane, and whoſe tops and ſides are thinly ſcattered with ſhrubs and underwood. On the higheſt point of the rocks, and on the very edge of the precipice, appears, half hanging in the air, the gate of the town called Bour-

* The houſe of Zæringen was deſcended from the ancient counts of Alſace, by Berchtold count of Briſgau. His grandſon, Berchtold the Second, built the caſtle of Zæringen, ſituated near a village of the ſame name, not far from the preſent town of Friburgh, capital of the Briſgau. Upon the demiſe of Berchtold the Fifth, the laſt duke without male iſſue, his territories were divided between his collateral heirs, the dukes of Teck, and his two ſiſters Agnes and Anne. Agnes married Egeno, Count of Urach, by which marriage he obtained poſſeſſion of Friburg in the Briſgau; his poſterity were called counts of Friburg. Anne married Ulric, Count of Kyburg; their daughter Hedwige was wife of Albert Count of Hapſburg, and mother of the Emperor Rodolph the Firſt.

guillon: a ſtranger ſtanding on the bridge would compare it to Laputa, or the flying Iſland in Gulliver's Travels, and would not conceive it to be acceſſible but by means of a cord and pulleys. In the midſt of the river I obſerved a large fragment of ſtone, which a few years ago fell from the rocky heights, was carried under one of the arches, and in conjunction with other fragments ſtopping the current, raiſed it more than ten feet above the uſual level, threatening the lower parts of the town with a ſudden inundation.

A traveller fond of wild and romantic ſcenery will not fail to viſit the Moulin de la Motte, in the valley of Goteron: it is a miller's dwelling, hollowed in the midſt of an impending rock, near it iſſues a ſmall torrent, which, turning the mill, falls within a few paces into the Sane. This ſingular dwelling ſeems ſo far removed from "*the buſy hum of men*," as to be rather ſituated in a remote ſolitude, than within the walls of a fortified town. Near it is an aſcent of four hundred ſteps to the Place des Fontaines, in the upper part of the town.

The valley of Goteron, on the north-weſt of the town near the bridge leading to Bern, takes its name from the Goteron, a ſmall rivulet; it is extremely narrow, above two miles in length, and is bounded on each ſide by overhanging rocks of ſand-ſtone. Vernet, the celebrated landſcape painter, ſtudied theſe rocks with great attention, and frequently declared that, excepting thoſe of Tivoli, he never ſaw any whoſe varying tints had a more pleaſing and harmonious effect. The valley contains ſeveral mills, an iron foundery, where the ore brought from Franche Comté is forged, and a manufacture of printed linen and cotton, lately eſtabliſhed by ſome merchants of Neuchatel, under the protection and encouragement of government.

The houſes of Friburg, conſtructed with a grey ſand-ſtone, drawn from a neighbouring quarry, are neat and well built; but the whole town has a dull and inanimate appearance.

Among the few objects worthy of particular notice are, the cathedral, an elegant Gothic edifice, erected in the latter end of the fourteenth century, and remarkable for the height and ſolidity of the tower; the town-houſe an ancient building, which formerly compoſed part of the palace belonging to the dukes of Zæringen, and alſo a lime tree, in the middle of the principal ſquare. Tradition reports, that this tree was planted by one of the ſoldiers, on the 22nd of June 1477, on his return from the battle of Morat: an emblem of Swiſs liberty, which took deep root on the memorable defeat of Charles the Bold, and thus remaining firm againſt the conflicts of time, has continued to ſpread and flouriſh to the admiration and example of future ages.

The ſociety of Friburg is extremely agreeable; the gentry are frank and hoſpitable, and blend French politeneſs with great ſimplicity of manners. Dinner is uſually ſerved at twelve; and ſupper ſeldom later than eight. I never experienced a more cordial reception in any town of Switzerland.

The Biſhop of Lauſanne, called here the Biſhop of Friburg, reſides in this city. He is appointed by the Pope, uſually at the recommendation of the French Court; and his revenues including a ſmall penſion from France, and from the abbey of Hauterive, of which he was abbot, amount to about £400 *per ann.* His dioceſe extends over the whole canton, and part of that of Soleure; in all his acts and deeds he ſigns himſelf Biſhop and Count of Lauſanne, and Prince of the German Empire.

The preſent biſhop, Bernhard of Lenzburg, is a man of letters, and an honour to his profeſſion: he is employed in preparing for the public a biography of the illuſtrious and learned men born in the canton of Friburg, who have diſtinguiſhed themſelves, either in the civil, military, or literary line.

This canton is entirely catholic. Its population in 1785 may be eſtimated from the following table:

The town contained	5,011
The environs	15,500
The remainder of the canton	33,078
Abſentees	4,000
Number of inhabitants	57,589

The ſovereign power reſides in the Great Council of Two Hundred; compriſing the two Avoyers, the Chancellor, the Grand Sautier, the Senate or little Council of Twenty-four, the Sixty, from which body are choſen the bannerets and principle magiſtrates, and the remaining hundred and twelve members, who are ſimply denominated Burghers.

The only perſons eligible to this ſovereign council, and capable of enjoying any ſhare in the government, are the *ſecret* burghers, or a certain number of families divided into four *bannieres*, or tribes of the town; they are called *ſecret* burghers, to diſtinguiſh them from the other citizens, partly inhabiting the town, and partly the twenty-four pariſhes in the environs, who enjoy the right of appointing the avoyers, from certain candidates propoſed by the Sixty, and of annually confirming them. Hence many authors have called this government ariſto-democratical, but erroneouſly; for, as the power of the people is confined to the act of chuſing and confirming the two avoyers, and as the ſupreme authority abſolutely reſides in the Council of Two Hundred, neceſſarily ſupplied by a limited number of patrician families, the government is, in the ſtricteſt ſenſe, an ariſtocracy.

Inſtead of troubling you with an unintereſting detail of thoſe points in which the government of Friburg reſembles that of the other ariſtocratical cantons, I ſhall confine myſelf to thoſe peculiar circumſtances by which it is diſcriminated from them. This difference may be principally ſaid to conſiſt in three articles.

1. The *blind ballot*, or mode by which ſeveral important offices are ſupplied, and particularly by which the members of the ſenate and the ſixty are choſen, this mode of election was inſtituted in order to prevent venality, and is too ſingular not to be diſtinctly explained. The names of the candidates are placed privately in a box, containing as many partitions as there are perſons who ſolicit the charge. Into each of theſe partitions, the electors throw in their ſuffrages as chance directs, without knowing to whom they may happen to give their votes; and the candidate who has the moſt of theſe caſual ballots is elected.

2. The clauſe which excludes certain noble families from the office of banneret, and from the *ſecret chamber*. Theſe families are ſixteen in number; ſome were acknowledged noble, even as early as the foundation of the republic; others ſucceſſively obtained titles of counts and barons from the foreign princes to whom they were attached, and in whoſe armies they ſerved.

3. But the moſt remarkable circumſtance which diſcriminates the conſtitution of Friburg from that of the other ariſtocratical cantons, is a committee diſtinguiſhed by the name of the *Secret Chamber*, which, though not any public or reſponſible part of adminiſtration, is yet the concealed ſpring that puts the wheels of government in motion. As the prerogatives and operation of this *ſecret chamber* are in general little known, and ſtill leſs underſtood, a conciſe account of its origin and conſtitution will not be unintereſting.

The

The *Secret Chamber*, forming a part of the Council of Sixty, is compoſed of the four bannerets, and twenty-four members; the four bannerets are choſen by the Council of Two Hundred from the four tribes, and remain in office four years; the twenty-four are nominated by a majority of their own body, and continue for life.

The *ſecret chamber* aſſembles ordinarily four times in the year, or oftener if occaſion requires, and is convoked by a banneret. The two principal meetings are between the Sunday before St. John's day and the 24th of June, uſually on the anniverſary of the battle of Morat, for the purpoſe of appointing the vacant places in the council of two hundred; and on Tueſday in Whitſun-week, when they ſupply the vacancies in their own body.

Its origin is thus traced in the records of the republic. From 1347 to 1387, the three bannerets nominated twenty perſons from each of the three tribes into which it was then divided, and theſe ſixty aſſembled on the Sunday before St John's day, to eſtabliſh the ſenate, and elect the treaſurer; from hence is derived the origin of the ſixty, and of the aſſembly which meets on the Sunday now called *Secret Sunday*. It conſiſts of the whole council of two hundred, excepting the avoyers and ſenate, and is preſided by the chancellor, the four bannerets, and the members of the *ſecret chamber*, who take the places of the ſenators. This aſſembly reviews, confirms, or cenſures, if neceſſary, the ſenators, the bannerets, and the ſixty, (the members of each tribe retiring, while their conduct is examined by the remainder,) and fills up the vacant places in the ſenate, and the ſixty, by blind ballot.

In 1387, the nomination of the ſixty was transferred from the bannerets to the aſſembly which met on the *Secret Sunday*, and that aſſembly was alſo empowered to appoint the ſenate, the treaſurer, the ſixty, and the remaining members of the two hundred. By a charter of the ſame year, four coadjutors, drawn from the ſixty, were given to each banneret, who were choſen in the ſame manner as the bannerets, ſeparately by each tribe, and this may probably be conſidered as the origin of the *ſecret chamber*. A charter of the year 1392 confirms the *Secret Sunday* in the right of nominating the ſixty, and confers on the bannerets that of chuſing the *prud hommes*, who accompanied them when they convoked the people on St. John's day, and probably alſo that of appointing their coadjutors. This nomination took place, as at preſent, on the Tueſday in Whitſun-week. The town being at that period only divided into three tribes, the coadjutors were limited to twelve; when a fourth tribe was added, their number was augmented to ſixteen.

A charter dated 1404 confirms, in many inſtances, theſe arrangements; but does not grant to the *Secret Sunday*, the nomination of the two hundred; a right at that time enjoyed by the bannerets, who ſhared it with their coadjutors, the *ſecrets*: thus probably aroſe the power of appointing the members of the two hundred, ſince conſtantly exerciſed by the bannerets and *ſecrets*.

The ſame charter orders the bannerets to aſſemble on Whit-Tueſday, in conjunction with the ſixty of the preceding year, for the purpoſe of electing four members of the ſixty from each tribe, who ſhould accompany the bannerets when they convoked the aſſembly of burghers and inhabitants on St. John's day; and two additional members for convening the aſſembly of *Secret Sunday*. Here then are ſix perſons from each tribe employed in theſe covocations, or in all twenty-four perſons, the number of members who now form the *ſecret chamber*. The ſame charter alſo enjoins the bannerets and *ſecrets* to collect the votes in all elections and deliberations; an office which they continue to exerciſe to this day.

As

As early as the beginning of the fifteenth century, the bannerets and *ſecrets* aſſembled at Chriſtmas and Eaſter, for the purpoſe of preparing ſuch motions as were to be laid before the council of two hundred, which adopted, modified, or rejected them.

As the bannerets probably continued to employ the ſame coadjutors in convoking the aſſemblies on St. John's day, and on *Secret Sunday*, the *ſecret chamber*, compoſed of theſe twenty-four coadjutors, at length became a permanent body, and enjoys the following prerogatives: 1. It convokes, in conjunction with the bannerets, the people on St. John's day, and the aſſembly which meets on *Secret Sunday*. 2. Prepares and draws up all the laws and ordinances, enjoys the ſole power of propoſing in the Great Council, and by means of the bannerets, of putting a negative on any motion, by ſimply affirming it to be contrary to the conſtitution.

3. Collects the votes in the election or confirmation of the avoyer, at the meeting of the people on St. John's day, and in the deliberations of the Great Council. 4. Fills up all the vacancies in that Council. 5. Suſpends, depoſes, confirms, and cenſures its members. 6. Confirms, or ſuſpends and depoſes its own members; makes regulations for the interior adminiſtration of its own body; appoints the manner of electing its own members, and filling up the vacancies in the Great Council. 7. Fixes on the time for thoſe elections, and the ſum of money which each member is permitted to receive from thoſe elected. 8. It can exclude all candidates from being choſen members of the ſenate, of the ſixty, from the office of bailifs, and other important charges, either by refuſal to preſent, or by rejecting them as incapable. All theſe prerogatives, founded on authentic documents, or immemorial uſage, were confirmed by the council of two hundred, in 1606, 1623, and particularly in 1716.

All affairs of government, and all debates in the national aſſemblies, are carried on in the German language; and as the French tongue is ſpoken in the greater part of the canton, and particularly by the gentry, many members of the Great Council do not underſtand the debates.

Such was the general form of government when I firſt viſited Friburgh in 1776; ſince that period it has undergone ſome very important alterations, the ſubſtance of which I ſhall communicate to you in the following letter.

LETTER LIII. — *Origin and Suppreſſion of the late Troubles in the Canton of Friburg.— Changes in the Form of Government.*

THE excluſive right of ſharing in the adminiſtration of affairs, enjoyed by a certain number of families, in the ariſtocratical cantons, has, in conjunction with other concurrent circumſtances, occaſioned revolts in thoſe of Zuric, Bern, and Lucern, which were quelled by the interpoſition of the other Helvetic powers, and prevented from again breaking out, by judicious regulations. Friburg having exhibited a recent example of the ſame kind, I endeavoured to trace the origin and progreſs of thoſe inteſtine commotions, which have been followed by a conſiderable alteration in the form of government. Accordingly, I now lay before you the reſult of my inquiries, impartially drawn from repeated converſations with perſons of both parties, from an attentive peruſal of ſeveral publications written during the courſe of the troubles, and from ſome curious manuſcripts, which I fortunately obtained.

In the latter end of April 1781, an inſurrection ſuddenly broke out in the bailliage of Gruyeres, a diſtrict in the ſouthern part of the canton, whoſe inhabitants are extremely jealous of their liberties, and zealouſly attached to all the cuſtoms of their anceſtors.

Irritated

Irritated by a few impolitic acts of government, by the petty vexations of the bailifs, by the ſecularization of Val Sainte, a convent of Chartreux, by the abolition of ſeveral faſts and feſtivals, and excited by the artifices of Chenaux and Caſtellaz, two deſigning leaders, they roſe in open rebellion.

Peter Nicholas Chenaux, the chief of the ſedition, was a native of la Tour de Treme, in the bailliage of Gruyeres: he was greatly embarraſſed in his circumſtances, and being arreſted and impriſoned in 1771, for his diſobedient and turbulent conduct, was highly exaſperated againſt government. He was in the thirty-eighth year of his age, of a good figure and expreſſive countenance, and being a man of rude but popular eloquence, and of an overbearing ſpirit, obtained a conſiderable influence over the artleſs inhabitants. His abettor, John Nicholas Andrew Caſtellaz, was a burgher of Friburgh, and advocate of Gruyeres; verſed in all the chicanery of the law, converſant in the hiſtory and ancient records of his country, and well acquainted with the privileges of the people, he was the firſt to expoſe the ſlighteſt oppreſſions of the bailif, and to remark wherever government ſeemed to infringe their immunities, or iſſued edicts contrary to long-eſtabliſhed uſage. Having a loud voice, and vehement elocution, he was formed for popular aſſemblies, and principally directed Chenaux in all difficult emergencies; he drew up the principal remonſtrances which, exaggerating every defect in the conſtitution, tended to render government odious, and to ſpread diſcontents among the people.

Theſe two leaders, in conjunction with other accomplices, availed themſelves of the public diſſatisfaction, and engaging a conſiderable number of adherents, held, in the month of April 1781, regular meetings at Bulle. On the 24th, in particular, they inſinuated before a large aſſembly, that government had formed a deſign of impoſing additional taxes of a grievous nature, particularly on horned cattle and horſes, and even of withholding the annual preſent of ſalt, which they ſhared with the burghers of Friburgh. They repreſented that the ſecularization of Val Sainte, and the abolition of certain feſtivals, implied a ſettled determination to overturn the religion of their anceſtors; that the governing party had many enemies; that the deſpotiſm of the ſecret chamber was held in univerſal abhorrence; that the nobles were diſcontented, on account of their excluſion from the principal charges of the commonwealth; and that the burghers and inhabitants of the twenty-four pariſhes were jealous of the exorbitant rights poſſeſſed by the ſecret burghers. They added, the time was arrived when the people might venture with impunity to petition for redreſs of grievances; a ſtrong party in the capital was ready, on the firſt moment of their appearance, to join them; and multitudes would repair from all quarters to the ſtandard of liberty.

Having, by theſe and ſimilar inſinuations, increaſed the number of their adherents, it was finally concluded that, on the 3d of May, they ſhould ſecretly repair to the capital, and, aſſembling in the market-place, force the arſenal; that having provided themſelves with arms, they ſhould ſecure the garriſon, conſtrain the Great Council to redreſs their grievances, and make thoſe changes in the conſtitution, which could alone ſecure to the people a mild and juſt adminiſtration.

Notwithſtanding the general ferment which prevailed among the people in the bailliage of Gruyeres, and the number of perſons concerned in this conſpiracy, government received no notice of the plot before the 29th or 30th of April. On the firſt certain intelligence of the intended inſurrection, the council of war, who immediately aſſembled on the occaſion, diſpatched ſome troops to arreſt Chenaux; but having received information from one of his accomplices in the capital, he eſcaped to la Tour de Treme, and, being joined by the moſt deſperate of his adherents, determined to take arms without

delay,

delay. Having, by means of his emiſſaries, excited the ſpirit of rebellion among the people, who were informed that Chenaux had narrowly eſcaped an arreſt for his patriotic attempts, he ventured to repair to Gruyeres, where Caſtellaz had already collected a conſiderable party. The advocate, having aſſembled a large body during the night, expatiated with much force and eloquence on the ſeveral grievances, and uſed various arguments in favour of an immediate revolt, ſimilar to thoſe which were urged on the 24th of April. He inflamed the populace to ſuch a degree of frenzy, that they flew to arms at five in the morning, and, impriſoning the bailif, erected the ſtandard of rebellion. The alarm being given, Chenaux advanced to Poſieux, which was fixed for the place of general rendezvous; from whence he addreſſed a letter to the magiſtrates of Friburg, diſclaiming all deſign of violence, and requiring only that the petitions and remonſtrances of the people ſhould be taken into conſideration.

On the next morning he conducted about ſixty of his partiſans to a height overlooking Friburg with an intention of ſurpriſing the city; but finding the gates ſhut, the fortifications guarded, and not being joined, as he expected, by the inhabitants of the twenty-four pariſhes, he retired firſt to Poſieux, and afterwards to Avry, where he expected a reinforcement, which Caſtellaz and his emiſſaries were collecting in various parts of the canton.

During theſe proceedings, the magiſtrates of Friburg were active in preparing for the ſecurity of the town. The council of war ſat the whole night; a night of extreme terror and anxiety to many of the inhabitants. The account of the bailif's arreſt, of Chenaux's eſcape, and his arrival at Poſieux, within two leagues of the capital, with a corps of rebels whoſe number rumour exaggerated, was no ſooner divulged, than a general panic prevailed. The garriſon ſcarcely conſiſted of more than fifty ſoldiers, and thoſe chiefly invalids; the fortifications were weak and extenſive; not more than two hundred burghers could be muſtered to defend the ramparts, and the inſurgents were ſuppoſed to poſſeſs a ſtrong party even within the walls. If in this moment of diſorder, aided by the darkneſs of the night, Chenaux had attacked the town, he might have carried it by aſſault. But the firſt emotions of terror had no ſooner ſubſided, than the beſieged aſſumed a ſpirit and vigour adequate to the alarming ſituation of affairs; they ran to arms; the nobles, burghers, and even ſtrangers, crowded to the ramparts, and prepared for a vigorous defence; their confidence was raiſed by the arrival of ſome militia from Morat, who entered the gates at nine in the morning, and by the expectation of more effectual ſuccours from the canton of Bern.

On the preceding evening a meſſenger was diſpatched to Bern, requeſting immediate aſſiſtance. He arrived ſoon after midnight: the avoyer d'Erlach, in the 85th year of his age, inſtantly ſummoned the Sovereign Council. "Gentlemen," exclaimed the venerable magiſtrate, "on other occaſions you have a year to deliberate; you muſt now inſtantly act: Friburg is beſieged by an army of rebels; let thoſe who approve ſending troops to her relief hold up their hands." The members unanimouſly aſſenting, twelve hundred troops were commanded to march without a moment's delay. Before the cloſe of the evening Major Rihimer entered Friburg at the head of two hundred ſoldiers, who paſſed unmoleſted through flying parties of the inſurgents; at midnight a hundred and fifty dragoons arrived, and on the next morning eight hundred infantry completed the reinforcement.

The arrival of theſe troops inſpired the magiſtrates of Friburg with perfect confidence and ſecurity, and ſaved the town from the moſt imminent danger. Nevertheleſs the emiſſaries of Chenaux and Caſtellaz, ranging about the country, ſounded the church bells in the various pariſhes, exclaiming that their religion and liberties were threatened

with immediate annihilation. The rebel forces were continually augmenting; they were joined by many inhabitants in the environs of the town, and the leaſt ſucceſs would have increaſed their number. Chenaux had ſeveral emiſſaries within the city, and before mid-day threatened Friburg at the head of above two thouſand men, eight hundred of whom were provided with muſkets, the remainder with only clubs, or the firſt weapons which chance preſented. Having occupied the heights, he found his followers wavering and irreſolute, and ſtruck with a general panic on receiving the news, that a large body of troops from Bern had reinforced the garriſon. He poſted his followers, however, in an advantageous ſituation; waiting with conſiderable anxiety till his forces ſhould be increaſed, and an opportunity preſent itſelf of commencing hoſtilities, or obtaining a general amneſty for himſelf and his adherents.

In this ſituation of affairs, Major Rihimer led a detachment of one hundred and eighty dragoons from one of the gates; while Lieutenant Froideville, at the head of ſeventy men and twenty dragoons, ſallied from another. The major, driving the beſiegers from a height which commanded the town, continued his march with an intent of attacking them in front, and at the diſtance of about a cannon-ſhot reconnoitred eight hundred of the enemy drawn up in order of battle, but without artillery. The inſurgents no ſooner obſerved the cannon planted againſt them, and perceived that the commander was an officer of Bern, than they diſpatched repeated meſſengers to aſſure him they were only collected to petition for a redreſs of grievances, and entreated him to ſpare the effuſion of blood. Having received an anſwer, that he would undertake to intercede in their behalf, if they would inſtantly lay down their arms, and deliver up Chenaux; they agreed to the firſt point, but refuſed the ſecond. The major continued to enforce his demand, and gained time, until Lieutenant Froidevillee appeared unexpectedly in their rear. The two commanders repeating their promiſes, that their juſt remonſtrances ſhould not be neglected, the whole troop ſurrendered themſelves priſoners. Four of the principal ringleaders being ſecured, the remainder, having delivered in their names and places of abode, were permitted to retire without moleſtation.

Chenaux, either finding it impoſſible to excite his followers to ſuſtain the attack, or being deficient in perſonal courage, was among the firſt who betook himſelf to flight. Wandering from village to village, he was about midnight obſerved near Poſieux by Henry Roſſier, one of his principal accomplices. Roſſier, willing to ſave his own life by betraying his leader, ſeized him by the collar, reproached him for ſeducing the people into rebellion, and for cowardice in forſaking them, and, with the aſſiſtance of Chavailet and Python, two other inſurgents, wreſted from him a double-barrelled piſtol, and conducted him towards Friburg. Chenaux, ſuddenly diſengaging himſelf, drew out a knife, wounded Roſſier in ſeveral places, and endeavoured to eſcape towards Poſieux; but Roſſier ſnatching a muſket from one of his followers, ſoon overtook him, and ſummoned him to ſurrender under pain of inſtant death. Chenaux, deriving courage from deſpair, attacked Roſſier with inconſiderate fury, received the aſſailant's bayonet in his breaſt, and expired on the ſpot.

The death of the leader, the voluntary ſurrender of his principal aſſociates, and the flight of Caſtellaz, put an end to this ill-concerted enterpriſe. Six hundred inſurgents, the only remains of the rebels, were on the next morning obſerved hovering about the capital; but learning the fate of their leader, and the ſurrender of his followers, and being attacked by a corps of grenadiers, diſperſed without reſiſtance.

But although the inſurrection was thus ſuppreſſed, and all parties concurred in chaſtiſing rebellion; yet the ſpirit of diſcontent had ſpread itſelf with too great violence and rapidity among all ranks of men, not to convince the rulers of the ſtate, that the ſeeds

of the revolt lay deeper than appearances ſeemed to ſuggeſt. For it was obvious that the petty vexations of the bailifs, the abolition of unneceſſary faſts and feſtivals, and the ſeeming violation of a few trifling immunities, however exaggerated by the artifices of the moſt deſigning leaders, were not ſufficient to excite the people of Gruyeres to the deſperate extremity of taking arms againſt their lawful ſovereigns, if government had not been extremely unpopular; if ſeveral grievances of an oppreſſive nature had not required to be redreſſed; ſeveral odious reſtrictions to be removed, and ſeveral defects in the conſtitution to be remedied. Influenced by theſe conſiderations, government, in a manifeſto, iſſued on the 11th of May, after granting an amneſty, except to a few ring-leaders, found it neceſſary to invite the ſubjects of all denominations to preſent remonſtrances, to make repreſentations, and to petition againſt grievances. About the ſame time the three cantons of Bern, Lucern, and Soleure, diſpatched deputies to Friburg, offering their mediation towards compoſing the diſſentions of the republic.

In conſequence of this manifeſto, many petitions and remonſtrances were preſented to the Great Council, either claiming the renewal of obſolete rights, the removal of certain reſtrictions, or the abolition of various taxes; demanding redreſs of grievances, and an amendment of the conſtitution; or complaining of an infringement of popular franchiſes. As it would be needleſs to mention all the complaints and plans which were dictated by the ſpirit of party and the frenzy of innovation, I ſhall confine myſelf to three principal points of diſpute, which occaſioned the moſt violent altercations; and which would never have been compromiſed, had not the three mediating cantons effectually interfered: 1. The diſqualification of the nobility from the office of bannerets and *ſecrets*; 2. The exorbitant prerogatives and influence of the *ſecret chamber*; and 3. The excluſive privileges of the *ſecret* burghers.

1. With reſpect to the firſt point in agitation, it may be remarked, that the excluſion of the noble families from the charge of bannerets and of *ſecrets* appeared ſufficiently reaſonable, as long as the government was democratical, and the bannerets were, according to the ancient charters, choſen from the people, and of courſe when neither they, nor their coadjutors, the *ſecrets*, could be taken from the nobility. But when the government was changed from a democracy to an ariſtocracy, and the municipal adminiſtration no longer ſubſiſted, particularly when the troubles excited by the bannerets, in 1553, obliged the council of two hundred to transfer from the people to themſelves the right of appointing thoſe magiſtrates; the diſqualification of the nobility, which was founded on democratical jealouſy, ought to have no longer ſubſiſted. Their remonſtrances were therefore juſt, and would have been ſtill more reaſonable, if the troubles of the republic had not rendered them dangerous.

2. As to the ſecond point in queſtion: the extenſive power and extraordinary influence of the *ſecret chamber* could not fail to create jealouſies and diſcontents among all ranks of men. For, on conſidering the detail of their prerogatives, as laid down in the preceding letter, it muſt appear, that although the members of that committee enjoyed no poſitive authority in enacting or annulling laws; yet by being the depoſitaries of the conſtitution, and the ultimate framers of all decrees; by having the ſole right of propoſing, and a negative on all the reſolutions of the Great Council, no motion could paſs without their concurrence. It is alſo no leſs obvious, that the power of making regulations for the interior adminiſtration of their own affairs, myſteriouſly concealed from the knowledge of the Sovereign Council, might give riſe to dangerous abuſes; that the members of the chamber eventually enjoyed, by the power of excluding from all charges, that of nomination; that by appointing to the vacancies in their own body it was to be feared, what in effect happened, that an admiſſion into the *ſecret chamber* would

be chiefly confined to a few families; that, as they filled up all the elections in the council of two hundred, theſe elections would depend entirely upon a few perſons who poſſeſſed the greateſt credit, and that thus the government would gradually tend to a narrower oligarchy.

3. The third point in debate, namely, the excluſive privileges of the *ſecret* burghers, opened a larger and more dangerous field of contention. The demand of the other burghers that, according to the antient form of government, the right of admiſſion into the Great Council, inſtead of being excluſively confined to the *ſecret* burghers, ſhould be extended to them, ſeemed to militate againſt the fundamental laws of the republic, and to involve a total change in the very eſſence of the conſtitution.

The remaining part of the year was employed in agitating theſe points of diſpute; which gave riſe to many political and hiſtorical diſcuſſions, and occaſioned ſeveral curious reſearches into the origin of the *ſecret chamber*, and the riſe of the diſtinction between the *ſecret* and other burghers. For the purpoſe of aſcertaining theſe queſtions, the popular party demanded acceſs to the archives; but met with delays and refuſals on the part of government, which conſidered ſuch an enquiry of dangerous tendency, and calculated to introduce factious innovations in the ſtate.

Exaſperated by repeated refuſals, the populace began to ſhew ſigns of diſcontent, and to aſſemble in crowds at the place where Chenaux was put to death: they marched in ſolemn proceſſion, bearing croſſes and colours, and chaunting hymns and *requiems* in honour of this *martyr* (as they called him) to the religion and liberties of his country. Theſe tumultuous meetings would probably have ended in another inſurrection, if the Biſhop of Lauſanne had not forbidden them, under pain of excommunication. Towards the concluſion of the year, deputies from Bern, Lucern, and Soleure, arrived at Friburg, for the purpoſe of compoſing the differences ſubſiſting in the capital; and in order to conciliate the burghers, who were no leſs violent in favour of the nobles than in extending their own immunities, prevailed upon adminiſtration to repeal the diſabling clauſe. With reſpect, however, to the other ſubjects of controverſy, they conceived it dangerous to entruſt the leaders of a heated populace with the records of government, which might be attended with projects of endleſs innovation, and propoſed that the Great Council ſhould order a committee to draw up a declaration ſetting forth the privileges and franchiſes of the burghers, and that for the future this declaration ſhould be conſidered as a fundamental code.

But although theſe eſſential points were obtained; yet ſo many ſubjects of altercation ſtill remained, that for ſome time all further plans for compoſing the differences were fruitleſs. The deputies repaired to Morat, where they were employed, from the 25th of April 1782 to the 25th of July, in hearing appeals, reviſing and conſidering the arguments on both ſides, and conſulting on the beſt methods to conciliate the two parties.

The burghers however, diſſatisfied with the chiefs of the ariſtocracy, formed a reſolution to refuſe taking the annual oath of allegiance to the Great Council; nor were they without great difficulty prevailed upon by the three deputies in perſon to perform the uſual homage. Diſpleaſed nevertheleſs with the deputies themſelves, and conſidering them as partial to adminiſtration, they delivered a memorial, in which, after repreſenting their grievances, they threatened to appeal to the general diet of the thirteen cantons aſſembled at Frauenfield.

A meaſure of ſo alarming a nature, tending to produce a material change in the principles of the Helvetic Union, was ſtrongly reprobated by the members of that confederacy. For it was urged (and with great reaſon) that by introducing an innovation of ſuch public notoriety, the diſputes between the reſpective governments and their ſub-

jects would be liable to become more numerous and dangerous, and that in the end each canton would fall under the guardianſhip of the remainder. On the other hand, what rendered the preſent criſis ſtill more alarming was, that the court of France, conſulted by ſeveral leading members in adminiſtration, tendered her good offices towards compoſing the diſſenſions. And although the three cantons reprobated, with conſiſtent dignity, the intervention of any foreign power, and declared that Friburg, on accepting ſuch a mediation, ſhould be excluded from the Helvetic Confederacy; yet it was apprehended, that on an increaſe of the troubles the French would find ſome pretext to interfere in the affairs of Friburg, as they were actually engaged in thoſe of Geneva.

Influenced by theſe conſiderations, the three mediating cantons, anxious to bring matters to a ſpeedy concluſion, prevailed upon the ruling party to conſent to ſeveral alterations in the conſtitution. At length, after various delays, diſputes, and conferences, the deputies publiſhed on the 19th of June a manifeſto, declaring, that on an impartial and diligent review of the various memorials and manifeſtos on both ſides, the aſſertions of the burghers were groundleſs, and their demands unconſtitutional; that the preſent form of government had ſubſiſted above two hundred years, and that the ſupreme authority reſided in the members of the Great Council. To this declaration they added, that the three cantons would defend and protect the exiſting form of government, and would never permit an appeal relating to the amendment or alteration of the conſtitution, to any other power than the Supreme Council of the republic; *that* tribunal being alone competent to ſuch queſtions. At the ſame time they recommended to government a repeal of the diſabling clauſe, which excluded the nobility from the office of banneret or *ſecret*; to admit ſome new families into the *ſecret* burgherſhip; to hear and redreſs any remaining grievances, and to correct any defects in the conſtitution.

This declaration being accepted by government, was read on the 28th of July to the burghers aſſembled in their reſpective tribes; but ſeveral among them proteſting formally againſt it, the three principal ringleaders of this oppoſition were baniſhed, their proteſts diſregarded, and tranquillity reſtored.

Soon after this final pacification, the Great Council paſſed ſeveral acts for the redreſs of grievances, removed ſome burdens and uſages which had been the object of general complaint, and amended the conſtitution in the following points: 1. A perfect equality is eſtabliſhed between the *ſecret* burghers; the antient nobles are no longer diſqualified from holding the office of bannerets or *ſecrets*, but do not enjoy any precedence in conſequence of their titles, which in all acts and deeds within the canton of Friburg are omitted. In return, all the *ſecret* burghers are, without diſtinction of perſons, eſteemed equally noble. 2. Sixteen new families have been admitted into the *ſecret* burgherſhip, which addition nearly completes the number of a hundred families; and it is further enacted, that on the extinction of any three families, an equal number ſhall be elected without delay. 3. The vacancies in the ſixty, inſtead of being indiſcriminately ſupplied from the members of the two hundred at large, are now filled up according to ſeniority.

4. But the great and principal alteration in the form of government reſpects the new conſtitution of the *ſecret chamber*, which is changed in the following important points:

1. The members of that committee, inſtead of being nominated by a majority of voices in their own body, are now taken from the ſixty, and choſen by *blind ballot*. The candidates are no longer under the neceſſity of being preſented by a member of the *ſecret chamber*; but on addreſſing themſelves to their banneret, the latter is obliged to deliver in their names to the *ſecret chamber*. As each vacancy is ſupplied from the particular tribe in which it happens, this alteration muſt reduce the candidates to three or four:

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in order alſo to prevent cabal or corruption, if there ſhall be only one candidate, he is not neceſſarily elected; but it muſt be decided by lot, whether he ſhall be choſen or rejected, and if there ſhould be a majority of ballots for the negative, he muſt wait till the ſubſequent year before he can have another chance of being appointed. Each member on his election ſhall pay no more than 1l. 10s. to each banneret and *ſecret*; and the money ſhall be delivered to the ſecretary, and by him be equally diſtributed. 2. Neither father and ſon, nor two brothers, nor more than two perſons bearing the ſame name, ſhall be admitted at the ſame time into the *ſecret chamber*. 3. The members ſtill retain the right of filling up all the vacancies in the Council of two hundred, with the uſual proviſions, that the candidates ſhall be twenty years of age, and that the promotion ſhall take place every two years. It is further decreed, that on oath, under pain of deprivation, no more than 1200 crowns * ſhall be received for the nomination; and that the ſaid ſum, inſtead of being ſolely appropriated to the perſon who is to appoint, ſhall now be delivered to the ſecretary, to be by him equally diſtributed among the four bannerets, when either of them ſhall elect, or among the members of the *ſecret chamber*, belonging to the tribe in which there is a vacancy, when the turn devolves upon either of them †. It is moreover added, that if the perſon preſented by the banneret, or a *ſecret*, ſhall be rejected by two thirds of the chamber, another may be preſented; but if the ſecond is rejected, the right of preſentation ſhall be transferred to the banneret, or *ſecret*, next in rank of the ſame tribe. It is alſo ſtipulated on oath, that all promiſes of exchanging preſentations, or ſimilar engagements, ſhall not be valid for the future; thoſe only excepted which are now abſolutely ſubſiſting, and which concern either a ſon of the contracting party, or a perſon whoſe name is ſpecified. 4. The power of excluding perſons from the principal charges of government is ſtill reſerved to them; but they are exhorted to uſe it with great precaution and care. 5. The interpoſition of a negative, exerciſed by a ſingle banneret, is no longer ſufficient to reject a motion in the Great Council. The oppoſition, in order to render it valid, muſt now be founded on a preciſe law, and unanimouſly approved by the four bannerets; but if one ſhall diſſent, it is then referred to the Council of two hundred, which ſhall decide, by a majority of two-thirds, whether the negative ſhall be confirmed or rejected. 6. The power of propoſing, formerly veſted only in the *ſecret chamber*, is now extended to the members of the Senate and the ſixty; and the mode of deliberating on ſuch propoſitions and motions is attended with forms more or leſs complicated, as the object is more or leſs important. In all inſtances the laws are prepared and finally drawn up by the ſecret chamber. 7. The *ſecrets* ſhall take an oath before the bannerets as delegates of the Great Council, to obey all the ordinances of that aſſembly, and to obſerve the preſent articles, without retrenching or adding to them. And it is further ordered, that no alterations ſhall be made in the preſent conſtitution of the *ſecret chamber*, unleſs approved by three fourths of their own body, and by two thirds of the Great Council ‡.

* Of 25 bach each, the whole ſum 171l. 13s. 10d.

† Each banneret to nominate the firſt vacancy in his own tribe, and then each *ſecret* by rotation, according to ſeniority, in his particular tribe.

‡ On conſidering the preſent diſturbances, the number of the diſaffected, and the excluſive privileges of the ſecret burghers, it was natural to ſuppoſe that the French would have found more adherents in this canton than in any other part of Switzerland; but the reverſe was the truth. No innovation was made in the conſtitution before the ſurrender of the town; and the magiſtrates ſhewed leſs inclination than the people to reſiſt the French. On the ſame night in which Soleure was inveſted, a column of the French army, under the command of General Pigeon, marched towards Friburg, ſurpriſed the outpoſts, and ſummoned the magiſtrates, who were rouſed from ſleep by this unexpected attack, to an immediate ſurrender, while the French adherents in the town ſeized the arſenal. The magiſtrates inclined to capitulate, were deterred by the

LETTER LIV.—*Cheeſe of Gruyeres.—Hermitage near Friburg.*

THE canton of Friburg contains a ſmall portion of arable land, but abounds in paſtures; accordingly, its principal articles of exportation conſiſt in horned cattle, cheeſe, butter, and hides.

The cheeſe, well known under the name of Gruyeres, which is exported in large quantities, is made on a chain of mountains about ten leagues in length and four in breadth, extending from the bailliage of Schwartzenburgh to the diſtricts of Vevay and Aigle in the canton of Bern. All the cheeſe, though made in the ſame manner, is not of the ſame quality; a difference probably ariſing from the diverſity of the ſoil; the ſame plants not growing at all heights, and the lower paſtures, called *gites*, being not in ſuch eſtimation for their goodneſs as thoſe in the moſt elevated ſituations.

The whole diſtrict is divided into greater or leſſer farms, which the proprietors let out in leaſes of three or ſix years, at the annual rate of 16s. * to 1l. 10s. during five months for each cow, according to the nature or elevation of the ground: the lower paſtures, though not of the beſt quality, are the deareſt becauſe being ſooner freed from the ſnow, and later covered with it, they afford food to the cattle for a longer time.

Each farmer, having rented a mountain, hires from the different peaſants in the canton from forty to ſixty cows, from the 15th of May to the 8th of October, and pays at the rate of from 1l. 6s. to 1l. 13s. 6d. per head; each cow upon an average yields daily from twenty to twenty-four quarts of milk, and ſupplies two hundred pounds † of cheeſe during the five months. On the eighteenth of October the farmer reſtores the cows to the different proprietors. The cattle are then paſtured in the meadows which have been twice mowed, until the 10 or 11th of November, when on account of the ſnow, they are uſually removed to the ſtables, and fed during winter on hay and after-graſs.

As the mountains in the canton of Friburgh afford paſture for at leaſt 15,000 cows, it may be eſtimated that they annually ſupply about 30,000 hundred weight of cheeſe fit for exportation; beſide 2,000 or 3,000 after their return from the mountains, excluſive of a thinner ſort, which is made in various parts of the canton. The cheeſes fit for exportation weigh from forty to ſixty pounds each, and are ſold from 1l. 17s. to 2l. per hundred weight. Beſide the cows which are paſtured during ſummer in the mountains, the canton contains about 12,000 belonging to the landholders, which ſupply their families with milk.

The buildings neceſſary for making cheeſe conſiſt of a *chalet* or cottage, which contains a room with a furnace for boiling the milk, a cellar where the milk is preſerved, and

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the influx of 4000 peaſants who flocked into the town, recovered the arſenal, and with 1500 Barneſe troops, prepared to defend it to the laſt extremity. A meſſage being diſpatched to General Pigeon that the magiſtrates, overpowered by the people, could not offer a capitulation, ſome ſhells were thrown into the town, ſeveral houſes ſet on fire, a breach made in the walls, and the French prepared to ſtorm the place. The troops of Bern, perceiving the untenable ſtate of the fortifications, and the timidity of the magiſtrates, marched out with 30 cannon, and accompanied by the 4000 peaſants, without being moleſted by the enemy. The town was inſtantly occupied by the French, and a proviſional government elected by the diſtricts of Friburg ſuperſeded the former magiſtracy. Planta, vol. ii. p. 424.

* This letter was written in 1796, ſince which period perhaps the prices are altered.

† Each pound contains ſeventeen ounces and a fraction.

a ſtable

a ſtable for ſixty or ſeventy cows; near it is a kind of dairy-room, kept in an equal degree of temperature, where the cheeſes are every day turned and ſalted. The thickneſs of the vat, in which each cheeſe is preſſed, is about four inches. The caſks for exportation contain ten cheeſes, excepting thoſe deſtined for Italy, which hold only three, in order to be conveyed by mules acroſs the Great St. Bernard. The cheeſes well packed up bear the tranſport into the moſt diſtant countries; they ought to be kept in a damp place, and frequently waſhed with white wine, to preſerve them from inſects. When the cows return from the mountains, a ſpecies of cream cheeſe is made in autumn, and even in winter; it is much eſteemed, and is dearer than that of Gruyeres. The greater part of the ſalt uſed on theſe occaſions is drawn from Franche Comté; a ſmall quantity from Lorraine and Bavaria, but its quality is much inferior. The conſumption of the whole canton, for all purpoſes, is at leaſt 20,000 hundred weight, of which 15,000 is drawn from Franche Comté.

A great number of mares, foals, and horned cattle, are annually raiſed in the canton: the oxen of three or four years old are ſold in the canton of Bern, in the country of Neuchatel, and in Franche Comté. Upon an average it may be eſtimated that the canton of Friburg annually ſupplies paſture for 37,000 cows and oxen.

In our route from Friburg to Bern, we made a ſmall circuit to the village of Neuneck, to an hermitage, that lies about a league from Friburg; and which has been highly extolled by travellers on account of its ſingularity. It is formed in the ſolid rock, and was the work of two men; as ſuch, it is an aſtoniſhing performance, but, in any other reſpect, is ſcarcely worth viſiting. In the laſt century a hermit ſcooped out a hollow in this rock, juſt ſufficient to lie at full length: but his ſucceſſor deſiring a more commodious manſion, hewed, in the heart of the mountain, a chapel, ſeveral apartments, and ſtair-caſes. The length of the whole is above four hundred feet; one room is ninety feet long, and twenty broad; the ſteeple of the chapel, if it may be ſo called, is eighty feet high, and the chimney of the kitchen ninety.

The hermit who perforated this habitation, was near thirty years engaged in the work. What a waſte of time and induſtry! But ſuch is the folly of ſequeſtered ſuperſtition, that, for want of better occupations, it frequently has recourſe to laborious trifles. The ſituation of the hermitage is extremely beautiful: the rock hangs over the river Sane, which meandering between two chains of hills covered with wood, fills all the valley beneath. The preſent hermit is a German; and with him lives an old ſoldier.

From this hermitage to Neuneck (where the canton of Bern commences) the country is rich and finely wooded; on our right we had a diſtant view of rugged rocks, the ſnowy alps riſing above them and cloſing the proſpect. The ſun was now declining: the various tints of the evening, the purple gleam upon the naked rocks, and the rays of the ſetting-ſun upon the glaciers, which ſeemed to glow almoſt into tranſparency, caſt ſuch a beautiful radiance over this magnificent ſcene, as even the luminous pencil of Apelles himſelf, who is ſaid to have painted "*quæ pingi non poſſunt, fulgura & fulgetra**," would in vain have attempted to imitate. I am, &c.

LETTER LV.—*Town and Canton of Bern.*

Bern, Sept. 16.

I WAS much ſtruck, on entering into Bern, with its ſingular neatneſs and beauty. The principal ſtreets are broad and long, not ſtraight, but gently curved; the houſes

* "Things which cannot be painted, thunder and lightning." Vid. Plin. H. N. lib. 35. c. 10.

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are moſtly uniform, built of a greyiſh ſtone upon arcades. Through the middle of the ſtreets runs a lively ſtream of the cleareſt water, in a ſtone channel, while ſeveral fountains are not leſs ornamental to the place than beneficial to the inhabitants. The river Aar almoſt ſurrounds the town, winding its courſe over a rocky bed much below the level of the ſtreets, and for a conſiderable way forming by its ſteep and craggy banks a kind of natural rampart. The cathedral, a noble pile of Gothic architecture, ſtands upon a platform raiſed from the bed of the river, and commands a moſt extenſive view. The adjacent country is richly cultivated, and agreeably diverſified with hills, lawns, wood, and water; the river flows rapidly below, and an abrupt chain of rugged and ſnow-capt alps bounds the diſtant horizon. Such an aſſembly of wild and beautiful objects would, in any place, preſent a moſt ſtriking proſpect; but the effect is greatly heightened when ſeen from the midſt of a large town.

According to the native hiſtorians, Bern was built by Berchtold the Fifth, Duke of Zæringen, and was, from its foundation, an imperial city. Upon his death in 1218, the Emperor Frederic the Second conferred upon the inhabitants conſiderable privileges, and compiled a code, which forms the baſis of their preſent civil law. The liberty which this city enjoyed attracted many perſons from the adjacent country, who found a ſure aſylum from the oppreſſion of the nobles. Although Bern from its foundation was engaged in perpetual wars with its neighbours, and for ſome time with the Houſe of Auſtria; yet it continued to aggrandiſe itſelf by degrees, and conſiderably enlarged its territory. In the year 1353 Bern acceded to the Helvetic confederacy; and poſſeſſed ſuch power, even at that early period, as to obtain the ſecond rank among the Swiſs cantons. Since the acquiſition of the Pays de Vaud, the domains of this canton form nearly the third part of Switzerland, and about the fourth of the actual population; it contains about 370,000 ſouls, excluſive of 11,000 in the capital. At the introduction of the reformation in 1528, government acquired a large increaſe of revenue by ſecularizing the eccleſiaſtical poſſeſſions. At the ſame period the whole canton followed the example of the capital; and the reformed religion was permanently eſtabliſhed.

The canton is divided into two great diviſions, the Pays de Vaud and the German diſtrict. The Pays de Vaud having been conquered from the Houſe of Savoy, and the German diſtrict from the ſtates of the empire; juſtice is adminiſtered, and taxes regulated in each by peculiar laws and cuſtoms. Each of theſe diviſions has its treaſurer and chamber of appeal reſident in the capital; the chamber of appeal belonging to the Pays de Vaud judges in the laſt reſort, but the inhabitants of the German diſtrict may appeal to the ſovereign council.

The ſociety is extremely agreeable, and foreigners are received with great eaſe and politeneſs. The men do not meet in ſeparate ſocieties, and the women are the life and ornament of their daily aſſemblies, which begin about four or five in the afternoon, and continue till eight, when the parties uſually retire to their reſpective houſes. Dancing is a frequent amuſement at Bern; there is a public ball every fortnight, and in winter ſcarcely an evening paſſes without one. Theſe diverſions commence at ſo early an hour as five in the afternoon, on account of a ſtanding order of government, which prohibits their continuance after eleven. Engliſh country dances are uſually introduced, but the *waltze*, (which is a ſpecies of allemande,) the favourite dance of the natives, is moſt common; the parties arrange themſelves in diſtinct couples, and follow each other in a circular direction, the gentleman turning his partner with great velocity. The life and ſpirit of their dances ſtrike an Engliſhment with aſtoniſhment, and can ſcarcely be conceived by thoſe who have never ſeen them. The gaiety of the parties is ſtill more enlivened during the ſummer months, when the natives reſort to a garden near the town, and

dance under an open pavilion amid ſcenes of rural feſtivity. The foreigner who prefers the conſtant intercourſe of company to a more tranquil ſociety, will chooſe the reſidence of Bern rather than that of any other town in Switzerland.

There is but little trade in the capital; ſome few manufactures indeed (chiefly of linen and ſilk) have been eſtabliſhed, but are carried on by thoſe only who have no proſpect of being admitted into the ſovereign council. For thoſe families who enjoy any influence in public affairs would hold themſelves degraded by engaging in commerce; and as offices of ſtate, except bailliages, are in general not very profitable, nor indeed numerous, many enter, as their ſole reſource, into foreign armies. One general advantage, however, is derived from this anti-commercial ſpirit; the members of government not being intereſted in laying reſtrictions on trade, do not, as at Zuric and Baſle, confine the excluſive right of eſtabliſhing manufactures to the burghers of the capital; but wiſely extend that permiſſion to all their ſubjects without diſtinction. From this circumſtance, in conjunction with the mildneſs and wiſdom of government, ariſes that comfortable ſtate, and even affluence, which peculiarly diſtinguiſhes the peaſantry in the whole canton of Bern: to the natural reſult of theſe wiſe regulations may be reaſonably imputed the attachment to government particularly obſervable in the German diſtrict *.

It is remarkable that the peaſants, who have acquired opulence either by manufactures or agriculture, ſeldom quit their ſituation; they continue in the ſame habits which they contracted in the earlier period of life, and, however wealthy, never give their daughters in marriage but to perſons of their own deſcription.

The public buildings are conſtructed in a noble ſimplicity of ſtyle, and announce the riches and grandeur of the republic. The arſenal contains arms for ſixty thouſand men, and a conſiderable quantity of cannon, which are caſt in the town. The granary, an excellent inſtitution, ſimilar to that of Zuric, always contains a large proviſion of corn, ſupplied in conſequence of particular treaties by France and Holland.

* No ſubjects ever diſplayed more attachment to their government than the peaſants of this canton; and many inſtances occur in the hiſtory of Bern, when they flocked in crowds to the capital, to offer their aſſiſtance in ſuppreſſing all attempts to make innovations in the conſtitution. This unvaried attachment to the former government is a ſufficient eulogy of its mildneſs and equity, and affords a deciſive anſwer to all the reproaches of tyrannical oligarchy, urged by a few diſaffected perſons, and exaggerated by the French.

The addreſs of the fifty delegates choſen by the people to aſſiſt the ſupreme council in amending the conſtitution, bears the moſt honourable teſtimony to the wiſdom and integrity of government:

"It was to ſatisfy your views, that, as ſoon as we had taken our places in the aſſembly of the government, alterations were propoſed to us which appeared uſeful to the general good of the country, and ſuitable to circumſtances. We have ſupported theſe propoſitions with firmneſs, as you entruſted to us the care of co-operating as we ſhall judge neceſſary for the ſafety of the country.

"If it be true, that our conſtitution was not exempt from abuſes, which human weakneſs renders almoſt inſeparable from governments, how many have already diſappeared through the wiſdom and prudence of the adminiſtration? Did we not poſſeſs, in the fulleſt extent, the ſecurity of perſons and property, the two moſt precious advantages of civil ſociety? Can the adminiſtration be accuſed of a ſingle deviation from juſtice? Can the members of our government be reproached with the leaſt inclination that could look like corruption? Could the treaſures of the ſtate be adminiſtered with a ſtricter reſponſibility, with greater economy? And if the fertility of a parched and rocky ſoil, if the proſperity of a loyal nation, that has preſerved the ancient purity of its manners, be moſt certain proofs of the goodneſs of its government, is it not yourſelves who render this glorious teſtimony to the ſupreme power? Woe be to you, if ever you can forget it!"

The heroic intrepidity of the peaſants, who voluntarily ſacrificed their lives in defence of the conſtitution, notwithſtanding the irreſolution of the government, plainly proves that theſe ſentiments were indelibly impreſſed on the hearts of the people.

The progreſs of the fatal revolution in the canton of Bern, and diſſolution of the government, are related in the introductory account of the conqueſt of Switzerland.

The charitable inſtitutions are numerous, liberal, and well directed. The hoſpitals are in general large, clean, and airy; and, in the alms-houſe for the reception of fifty poor citizens, is a curious eſtabliſhment ſimilar to one which I noticed at Baſle. Diſtreſſed travellers are treated with a meal and a lodging, if at night, and receive ſixpence on their departure; if ſick or wounded, they are maintained till their recovery.

The houſe of correction which, when the benevolent Mr. Howard viſited Bern, was in ſo deplorable a ſtate, is now extremely well regulated, and reflects great honour on M. Manuel, member of the Great Council, to whoſe care and attention this ſalutary change is chiefly owing. Formerly all delinquents, without diſtinction, were confined together, but are now ſeparated; two houſes are eſtabliſhed, one called the Houſe of Correction for greater crimes, and the other the Houſe of Labour for miſdemeanors. The priſoners are alſo diſcriminated by the appellations of *brown* and *blue* from the colour of their clothes, with which they are ſupplied gratis during the term of their confinement; the brown colour is appropriated to the houſe of correction, the blue to the houſe of labour. The men and women are lodged in ſeparate apartments. Both are conſtantly employed, ſometimes in cleaning the ſtreets, and other ſervile occupations; at other times they are taught to read and write, and inſtructed in various trades, which may aſſiſt them in gaining a maintenance at the expiration of the time for which they were ſentenced to hard labour. By theſe means the expence of the eſtabliſhment is nearly ſupported, and an honeſt livelihood aſſured to thoſe who would otherwiſe prove uſeleſs or pernicious members of ſociety.

There are four tables, at which the reſpective ſeats are a mark of diſtinction appropriated to good behaviour, and a larger or leſſer ſhare of proviſion is diſtributed to each in proportion to their induſtry. After earning their food, the priſoners in the houſe of labour receive ten per cent., thoſe in the houſe of correction eight per cent., for their extra work.

Public juſtice is wiſely and impartially adminiſtered; and the torture, which had for ſome time fallen into diſuſe, is now formally aboliſhed by a public act of government. This humane and juſt act forms a diſtinguiſhed æra in the hiſtory of Swiſs juriſprudence; as the example of ſo powerful and wiſe a government cannot fail of having a general influence; and it is to be hoped, will be the prelude to the abolition of torture throughout Switzerland.

The ſolemnity uſed in paſſing capital ſentence on a criminal deſerves to be mentioned and imitated. The trial being finiſhed, the priſoner is informed of his condemnation by the *Grand Sautier*, or lieutenant of the police, and attended by two clergymen, who prepare him for death. On the day appointed for execution, a large ſcaffold, covered with a black canopy, is conſtructed in the middle of the principal ſtreet. The avoyer, with a ſceptre in his hand, is ſeated on an elevated kind of throne between two ſenators, and attended by the chancellor and lieutenant of the police, holding an iron ſtick, called the *rod of blood*, all habited in their official robes. The criminal being brought to the foot of the ſcaffold without chains, the chancellor reads aloud the ſentence of condemnation, at the concluſion of which the avoyer bids the executioner approach, who inſtantly binds the arms of the culprit, and leads him to the place of execution.

The public library is a ſmall but well-choſen collection, containing 20,000 volumes, a cabinet of Swiſs coins and medals, and many curious manuſcripts, of which M. Sinner, a man of great erudition, has publiſhed a judicious catalogue. He has not only ſet forth their titles, and aſcertained their age, but has alſo given a general and ſuccinct account of their reſpective ſubjects, and from many has publiſhed extracts equally curious and intereſting. Among theſe MSS. are ſome of the thirteenth century, conſiſting of ſe-

veral ſongs and romances of the Troubadours, written in that and the preceding ages, which merit the attention of thoſe who are converſant in that ſpecies of ancient poetry.

Learning is neither ſo univerſally encouraged, nor ſo ſucceſsfully cultivated here as at Zuric; the academical ſtudies are principally directed to thoſe branches of knowledge more eſſentially neceſſary for entering into the church. The ſociety for promotion of agriculture is almoſt the only eſtabliſhment directly tending to promote the arts and ſciences, but meets with little countenance from government.

October 1786.

I FEEL a very ſenſible ſatisfaction on adding, that this enlightened government no longer merits the reproach of not ſufficiently encouraging literature; it is now awakened from its former lethargy, and begins to perceive that it is the intereſt of every wiſe ſtate to eſteem and protect the ſciences. The magiſtrates have lately purchaſed and appropriated a large manſion for the public library, increaſed the collection of books, and procured from England an extenſive apparatus for experimental philoſophy.

Among other undertakings, a new map of the canton is now preparing under their auſpices, by the profeſſor of experimental philoſophy, a great *deſideratum* in the geography of Switzerland, as the alps of the canton are incorrectly delineated in all the maps which have fallen under my obſervation. I am alſo happy to add, that the Rev. M. Wyttenbach has lately inſtituted a literary ſociety for the promotion of phyſics and natural hiſtory in general, and that of Switzerland in particular. In January 1788, this ſociety conſiſted of ten members reſident at Bern, of whom ſeveral poſſeſs, and others are forming collections agreeable to the plan of the inſtitution. The members have eſtabliſhed regular correſpondence in various parts of Europe, and readily anſwer the inquiries of foreign naturaliſts, relating to the natural hiſtory of this country. An inſtitution founded on ſuch liberal and extenſive principles, and having one object principally in view, cannot fail to render the moſt eſſential ſervice to ſcience.

I am, &c.

LETTER LVI.—*Government of Bern.*

WERE I to attempt entering into a minute diſquiſition concerning the government of Bern, my letter would not only exceed its proper limits, but would hardly be contained within the extent of an ordinary pamphlet. I am perſuaded, therefore, you will readily excuſe me from putting your patience to ſo tedious a trial; but you will probably think me very inconſiſtent indeed, if after having already deſcended into leſs intereſting details, I ſhould paſs over in ſilence a government, the wiſdom of whoſe adminiſtration is ſo juſtly admired. Let me endeavour then to ſketch the general outlines of this conſtitution.

The ſovereign power reſides in the Great Council of two hundred; which, when complete, conſiſts of two hundred and ninety-nine members, choſen from the citizens; from whom they are conſidered as deriving their power, and as acting by deputation. The authority with which they are inveſted is, in ſome reſpects, the moſt uncontrolled of any among the ariſtocratical ſtates of Switzerland. The government of Lucern is indeed called the moſt ariſtocratical of all the cantons; and it may be ſo perhaps with reſpect to the ſmall number of families, to which the adminiſtration of affairs is entruſted; but no war can be declared, no peace concluded, no alliance made, no taxes impoſed,

without the conſent of the burghers in a general aſſembly. At Friburgh and Soleure the burghers are likewiſe convened upon particular occaſions; whereas the Great Council of Bern (ſince 1682, when it was declared the ſovereign,) is reſtrained by no conſtitutional check of this kind; as a general aſſembly of the citizens is never conven d on any occaſion.

The executive powers of government are delegated by this ſovereign council to the ſenate, choſen by themſelves from their own body; the former aſſembles ordinarily three times a week, and extraordinarily upon particular occaſions; the ſenate every day, Sundays excepted.

The Senate, compriſing the two avoyers, or chiefs of the republics, is compoſed of twenty-ſeven members; and from this ſelect body are drawn the principal magiſtrates. On a vacancy in the Senate, twenty-ſix balls, three of which are golden, are put into a box, and drawn by the ſeveral members; thoſe who draw the three golden balls nominate three electors out of their body. In the ſame manner ſeven members are choſen from the Great Council, who alſo nominate ſeven electors out of their own body. Theſe ten electors fix upon a certain number of candidates, not exceeding ten nor leſs than ſix; and thoſe among theſe candidates who have the feweſt votes in the Sovereign Council retire till their number is reduced to four; then four balls, two golden and two ſilver, are drawn by the four remaining candidates; the two who draw the former are put in nomination, and he who has the greateſt number of ſuffrages in the Sovereign Council is choſen. But, to be eligible, the candidate muſt have been a member of the Great Council ten years, and muſt be married or a widower *.

The Great Council is generally filled up every ten years; as within that period there is uſually a deficiency of eighty members to complete the whole number of two hundred and ninety-nine. A new election can only be propoſed on a vacancy of eighty; and cannot be deferred when there is a deficiency of a hundred. The time of the election being determined by vote, each avoyer nominates two of the new members; each ſeizenier, and each member of the ſenate, one; two or three officers of ſtate enjoy the ſame privilege. A few perſons claim, by virtue of their offices, a right of being elected, and are generally admitted. Theſe ſeveral nominations and pretenſions commonly amount in the whole to about fifty; the remaining vacancies are ſupplied by the ſuffrages of the ſenate and the ſeizeniers †.

* Mr. Planta juſtly obſerves, that, although I have juſtly deſcribed this mode of balloting with ſufficient accuracy, yet I have not pointed out the true objects, which he thus deſcribes:

"The reaſon of this repeated alternation by lot and ballot cannot but be obvious to thoſe who will beſtow ſome thought upon the ſubject. Its greateſt excellence perhaps conſiſted in making the chance of lots apply chiefly to the electors, and not to thoſe who might pretend to the ſucceſſion; by which means the dangerous effects of cabal were in a great meaſure obviated; and yet a fair proſpect of ſucceſs was given to the meritorious, while thoſe wholly unqualified could entertain little hope of being preferred. The ſelected candidates drew lots only in one ſtage of the proceeding, and this when their number, being reduced to only four, an even chance was given to thoſe few to whom eminent qualifications had ſecured the marked approbation of their fellow-citizens; and when fortune proved unfavourable in one inſtance, repeated opportunities would occur in which, unleſs ſhe proved ſingularly unpropitious, the deſired object would ultimately be obtained. This mode will admit of much meditation, and may perhaps afford ſome hints for imitation. It has here been explained ſomewhat at large, as no ſimilar inſtitution occurs in any republic, either ancient or modern." Planta's Hiſtory of the Helvetic Confederacy, vol. ii. p. 261.

† This meaſure of deferring the election till the number of vacancies amounted to eighty, though not dangerous in times of tranquillity, was extremely impolitic in a period of innovation. It greatly contributed to diſorganiſe the government, at the commencement of the late revolution, as the admiſſion of ſo many new members, who were moſtly infected with French principles, proved the ſource of that fluctuation which diſtinguiſhed the counſels of this government, and precipitated its downfall.

The

The *Seizeniers* are ſixteen members of the Great Council, drawn yearly from the abbayes or tribes; two from each of the four great tribes, and one from each of the remaining eight; the candidates are generally * taken from thoſe who have exerciſed the office of bailifs; and are elected by lot. Every year during three days at Eaſter, all other employments in the ſtate are ſuſpended, except thoſe of the bannerets and the ſeizeners, who are inveſted with an authority ſimilar to that of the Roman cenſors. In caſe of mal-adminiſtration, they may remove any member from the Great Council, or Senate; but it is a power which they never exerciſe; and ſhould they think proper to exert it, the ſentence muſt be confirmed by the council.

The principal magiſtrates are, two avoyers, two treaſurers, and four bannerets; each choſen by a majority of voices in the Sovereign Council, and yearly confirmed in their reſpective offices. The avoyers hold their poſt for life; the treaſurers, ſix years; and the bannerets, four. At Eaſter the avoyer in office delivers up his authority, in full council, to his colleague. The *reigning* avoyer ſits on an elevated ſeat, under a canopy, and the ſeal of the republic lies upon the table before him. He never delivers his opinion except it is demanded; he enjoys no vote unleſs the numbers are equal, and in that caſe he has the caſting voice. The ex-avoyer is the firſt ſenator in rank, and preſident of the ſecret council.

The two treaſurers, one for the German diſtrict, and the other for the Pays de Vaud, form, in conjunction with the four bannerets, an economical chamber, or council of finance †; which paſſes the accounts of the bailifs, and receives the revenues from thoſe who are accountable to government. The four bannerets, together with the ex-avoyer, the ſenior treaſurer, and two members of the ſenate, compoſe a committee or ſecret council, in which all ſtate affairs, requiring ſecrecy, are diſcuſſed.

* I ſay *generally*, becauſe it is not abſolutely fixed, that all the ſeizeniers muſt have been bailifs; for if it happens, that in one tribe there are two perſons one of whom has been a bailif, and the other is a member of the Great Council, they draw lots for the charge. And ſhould a member of the Great Council be the only one of his tribe, he becomes ſeizenier of courſe, provided he is eligible. In order to be ſeizenier, the candidate muſt be married, or a widower, and have neither his father or brother in the Senate.

† The finances were regulated with the ſtricteſt economy, and yet the expenditure was anſwerable to the dignity of the republic.

The ſalaries of the principal magiſtrates were extremely moderate:

Reigning avoyer	£ 400
Senators each	150
Bannerets	230

The revenues were derived principally from the public demeſnes, which were appropriated at the time of the Reformation, the tithes ſequeſtered at the ſame period, and aſſigned to the maintenance of the clergy, public ſeminaries, and charitable inſtitutions; quit-rents, and monopoly of ſalt, and gunpowder; produce of the poſt-office, cuſtoms and tolls, duty on wine imported into the capital, and fines impoſed for miſdemeanors; alſo a tax on the alienation of landed property in the French diſtrict; the intereſt of money accumulated from a regular progreſſion of ſavings, of which near £500,000 were lodged in the Engliſh funds.

The whole revenue has been ſtated, by the beſt authorities, as not exceeding 300,000 crowns, which were always more than ſufficient to ſupply the expenditure, and to conſtruct and ſupport the magnificent public works. A large treaſure was always reſerved in a vault of the capital for the ſupply of ſudden emergencies, and the care of this vault entruſted to the principal magiſtrates, who had each a ſeparate key, and without their concurrence, and a ſpecial order from the Sovereign Council, the door could not be opened.

The amount of this treaſure could not be accurately aſcertained, but it muſt have been very conſiderable as not leſs than £160,000 ſterling was depoſited in the mountains of Haſli and Oberland. The pillage of this treaſure was one of the principal objects of the French Directory, to defray the expences of their armament againſt Egypt. In the plunder of Bern, the French did not acquire leſs than £400,000 in ſpecie.

I have only described these eight magistracies, as being the chief offices of the state and exercised by members of the Senate. But although the form of this constitution is aristocratical, and the Senate possesses a very considerable influence, yet it does not enjoy that almost exclusive authority, which is observable in many aristocratical governments. For, by several wise and well-observed regulations, the Sovereign Council, although it delegates the most important concerns of government to the Senate, yet assembles at stated times, and superintends the administration of public affairs.

It may also be remarked, that although the ancient houses retain very considerable influence, and are more readily entrusted with the administration of affairs; yet the principal charges are not exclusively confined to them; many new families being admitted into the Sovereign Council on every election. It must nevertheless be acknowledged, that, as the citizens are continually diminishing, and the vacancies never supplied; it would well become so wise a government to receive occasionally new families into the burghership, in order to prevent the ill effects arising from the partial and narrow spirit of too confined an oligarchy *. Government is administered throughout its several departments with great precision, and every ordinance executed with as much dispatch as in a monarchical state. The administration is conducted with great wisdom and moderation, and the rulers are particularly cautious not to encroach upon the privileges of the subject.

The canton is divided into a certain number of districts, called bailliages, over which bailifs are chosen from the Sovereign Council; and these posts being the most profitable in the disposal of government, are the great objects of general pursuit. Formerly the bailifs, taken indifferently from the Senate or Great Council, were nominated by the banneretes; but as this method rendered the members entirely dependent upon those who had the chief credit and influence in the commonwealth, the mode of election was altered in 1712, and they are now chosen by lot. No competitor, however, can be received as a candidate, in opposition to a more ancient member of the Great Council: for instance he who was admitted in 1766, cannot stand against one chosen in 1756. None but married men or widowers are eligible; nor can any person occupy more than once the principal bailliages; those of a less profitable kind may be possessed three times.

The bailifs are representatives of the sovereign power in their respective districts; they enforce the edicts of government, collect the public revenues, act as justices of the peace, and are judges in civil and criminal causes, except where there is any local † jurisdiction. In civil causes, beyond a certain value, an appeal lies to the courts of Bern: in criminal affairs, the process undergoes a revision in the Senate, and is referred to the criminal chamber, which inflicts punishment for small misdemeanors; in capital cases, the sentence must be confirmed by the Senate, and by the Sovereign Council, if the delinquent is a citizen of Bern. The bailif delivers his accounts to the economical chamber, to which court an appeal lies, in case of exaction on the part of the bailif, or of his officers; and with respect to misdemeanors punishable by fine, of which the bailif is entitled to a share, the proportion of the penalty is not left to the arbitrary decision of an interested judge, but settled by the legislature with the most scrupulous exactness.

* Since the publication of this work, the government admitted some new burghers both from the Pays de Vaud, and from the German district Among these was M. Cerjeat of Lausanne. But the number was too small to produce any material effect; and the admission was clogged with so many restrictions, that no advantage could be derived before the third generation.

† The lord of the estate of Diesbach enjoys, within his own lands, the same powers in criminal affairs, as are possessed by the bailifs in their respective districts.

Although

Although, from all theſe conſiderations, it ſhould ſeem, that every poſſible precaution has been taken by government to prevent the extortions of the bailifs; yet inſtances have not been wanting to prove, that theſe wiſe and ſtrict regulations may be eluded; theſe inſtances are very few, but ſeveral examples occur in which extortions have been ſeverely puniſhed, and the government has even ſhewn great readineſs to liſten to all appeals, and to afford ſpeedy redreſs.

The profits of the bailif's office ariſe from the produce of the demeſnes, of the tythes, certain duties paid to government in the reſpective bailliages, and from the fines impoſed for criminal offences. In ſome part of the German diviſion, the bailif is entitled, upon the death of every peaſant, to a determinate part of the inheritance; although his ſhare is very inconſiderable, yet in ſome ſituations it may prove an oppreſſive tax upon the family. This tax is the only inſtance that has fallen under my knowledge, where the peaſants of this canton are liable to any impoſition, which can juſtly be deemed grievous.

Although there are no ſtanding armies in Switzerland; yet in many of the cantons, and particularly in Bern, the militia is ſo well regulated, that government can aſſemble a very conſiderable body of men at a moment's warning. To this end every male at the age of ſixteen is inrolled, and about a third of the whole number are formed into particular regiments, compoſed of fuſileers and electionaries; the former conſiſting of batchelors and the latter of married men. Every perſon thus enrolled, is obliged to provide himſelf, at his own expence, with an uniform, a muſket, and a certain quantity of powder and ball; and no peaſant is allowed to marry, unleſs he produces his uniform and arms. Every year a certain number of officers, who are called Land Majors, are deputed by the council of war, to inſpect the arms, to complete the regiments, and exerciſe the militia. Beſide this annual review, the regiments are occaſionally exerciſed by veteran ſoldiers, appointed for that purpoſe.

Beſide the arms in the arſenal of Bern, a certain quantity is alſo provided, in the arſenal of each bailliage, ſufficient for the militia of that diſtrict; and likewiſe a ſum of money amounting to three months' pay, which is appropriated to the electionaries in caſe of actual ſervice. The dragoons are choſen from the ſubſtantial farmers; as each perſon is obliged to provide his horſe and accoutrements. In time of peace, the avoyer out of office is preſident of the council of war, and a member of that council is commander of the militia in the Pays de Vaud; but during war a general in chief is nominated for the forces of the republic. A certain number of regiments being thus always in readineſs, ſignals are fixed on the higheſt part of each bailliage, for aſſembling the militia at a particular place in each diſtrict, where they receive orders for marching.

Before I cloſe this letter, I ſhall juſt mention an inſtitution called the *Exterior State*, as remarkable for its ſingularity as utility. It is a model of the Sovereign Council, and is compoſed of thoſe burghers, who have not attained the age requiſite for entering into that Council. It has a Great Council, a Senate, two avoyers, treaſurers, bannerets, and ſeizeniers; all of whom are choſen in the uſual manner, and with the accuſtomed ceremonies. The poſt of avoyer in this mimic community is ſolicited with great aſſiduity, and ſometimes obtained a conſiderable expence; as the ſucceſsful candidate is always admitted into the Great Council, without any farther recommendation. This body poſſeſſes a certain number of bailliages, which conſiſt of ſeveral ruined caſtles diſperſed over the canton; it has alſo its common treaſure, and its debts. In this laſt article, however, it by no means reſembles the actual government of Bern, which is not only free from debts, but poſſeſſed of a very conſiderable fund in reſerve *.

* The badge or coat of arms borne by this mimic commonwealth, is an ape ſitting on a lobſter, and viewing himſelf in a mirror.

This

This remarkable inſtitution, may be conſidered as a political ſeminary for the youth of Bern. It renders them acquainted with the forms of the conſtitution; and, as the members debate upon all kinds of political ſubjects, affords them an opportunity of exerciſing and improving their talents, and by that means of becoming more capable of ſerving the public, whenever they may be admitted to a ſhare in the adminiſtration.

I am, &c.

LETTER LVII.—*Biographical and Literary Anecdotes of Haller.*

BERN has produced few men highly eminent in literature; but has eſtabliſhed her glory in being the birth-place of the celebrated Haller.

Albert Haller *, the youngeſt of five brothers, was born on the 16th of October 1708. His father, Emanuel Haller, a citizen of Bern, practiſed the law as an advocate with great ſucceſs; and in 1713 removed from the capital to Baden, where he was appointed ſecretary of that bailliage.

Although many accounts are uſually related concerning the early genius of diſtinguiſhed perſons, which do not always deſerve implicit credit; yet the premature abilities and application of Haller are inconteſtably proved. When he had ſcarcely attained his fifth year he was accuſtomed to write the new words, which he recollected to have heard in the courſe of the day. His progreſs in the languages was ſo rapid, that in his tenth year he could tranſlate from the Greek, and compoſed for his private uſe a Chaldaic grammar, a Greek and Hebrew lexicon. His paſſion for letters was alſo ſo general and ardent, that, about the ſame period, he abridged from Bayle and Moreri an hiſtorical dictionary, compriſing above two thouſand lives, and diſtinguiſhed himſelf by a ſatire in Latin verſe againſt his preceptor Abraham Baillodz, a perſon of conſiderable learning, but of a capricious and moroſe diſpoſition.

Such unwearied application, and aſtoniſhing progreſs in a youth, ought to have enſured the approbation and encouragement of his family. On the contrary, his father, who had deſtined him to the law, reproved his growing taſte for polite literature, was particularly offended at his inclination for poetry, as likely to draw him from the ſeverer occupations, and objected to the variety of his purſuits as too deſultory and ſuperficial.

* The materials for this biographical ſketch, are chiefly collected from the following lives of this great man, which, I was informed by his eldeſt ſon, ſince deceaſed, are thoſe to which moſt credit may be given. 1. *Leben des Herrn von Haller*, by George Zimmerman. Zuric, 1755. The author was the diſciple and friend of Haller. 2. *Lobrede auf Herrn Albrecht von Haller, von Herrn von Balthaſar.* Baſel, 1778. The author was Haller's intimate friend, and was well acquainted with the principal events of his life. He is the ſame gentleman whom I have mentioned in vol. i. Letter 23. 3 *Lobrede auf Herrn Albert Haller.* Durch, V. B. *Tſcharner des Groſſen Raths, &c.* Bern, 1778. M. Tſcharner, being a native of Bern, and an intimate acquaintance of Haller, his account deſerves implicit credit. He was author of ſeveral eſteemed works on the topography and hiſtory of Switzerland. He died in 1778, a ſhort time after he had pronounced this panegyric on his deceaſed friend. 4. *Eloge Hiſtorique d'Albert de Haller, avec un Catalogue de ſes Oeuvres.* Geneve, 1778 Sennebier, the writer of this eulogium, is well known as the learned author of *Bibliotheque de Geneve*, and of *Hiſtoire Litteraire de Geneve.* He informs us, that he received ſeveral anecdotes from the family of Haller.

Many other panegyrics and lives of Haller have been publiſhed in various parts of Europe; but as they were moſtly written by thoſe who were not perſonally acquainted with him, I have not cited them as authorities. His ſon mentions nineteen lives and panegyrics of his father, that had fallen under his notice in 1784. See Bibl Schweit. Geſchich. vol. ii. No. 832—906. I have been enabled to add ſeveral anecdotes which I procured at Bern, and from his eldeſt ſon the late bailif of Nyon.

The completeſt liſt of Haller's works is to be found in the 6th volume of "*Epiſtolæ ad Hallerum ſcriptæ.*" Bern, 1775. His ſubſequent publications may be ſupplied from Sennebier's catalogue.

He did not conſider, that, during childhood, the principal object of education is to infuſe a taſte for application in general; and, that when the baſe is rendered as broad as poſſible, it may always, like a pyramid, be reduced to a point. But neither his father's repeated exhortations, nor his preceptor's ſevere admonitions, could confine his ſtudies to one object, or check his inſatiable thirſt for general information.

In this manner he was educated until 1721, when, on his father's death, he was removed to the public ſchool at Bern. He was placed in a claſs far above his age; and uſually wrote in Greek the exerciſe which he was expected to compoſe in the Latin tongue. In 1723 he obtained permiſſion to accompany a young friend to Bienne, in order to be inſtructed in philoſophy by the father of his companion, who was a celebrated phyſician. But his new preceptor being a bigot to the Carteſian ſchool, Haller ſoon rejected with diſdain that logic and philoſophy, which tended to cramp his genius rather than extend his knowledge, and continued to cultivate hiſtory, poetry, and polite literature, but with as little order and method as might be expected from his years.

Haller, during his reſidence at Bienne, began a cuſtom which he afterwards followed through life, that of writing his opinion of the books which he peruſed, and making large extracts from them. His genius being alſo awakened by the romantic ſcenery of the country to poetical enthuſiaſm, he compoſed various pieces in the epic, dramatic, and lyric ſtyles. He was at this time ſo entirely abſorbed in this favourite ſtudy, that, a fire breaking out in the houſe in which he reſided, he ruſhed into his apartment, and reſcued his poetry, leaving his other papers, with little regret, to the flames. When a more mature age had ripened his judgement, he was frequently heard to ſay, that he had preſerved from the flames thoſe compoſitions which he then thought the fineſt productions of human genius, in order at a future period to conſign them to deſtruction as unworthy of his pen *.

In this period of life, Haller compares himſelf to a wild plant, which is left to grow without pruning: yet this very circumſtance was probably the principal cauſe of his future proficiency, and the foundation of that univerſal knowledge, which he afterwards acquired.

He was originally intended for the law; but his active mind could not ſubmit to follow a profeſſion which would limit his inquiries; which entirely depended on precedent and authority; and which, to uſe his own quotation from Horace, in a letter to his friend Bonnet, obliged him,

Jurare in verba magiſtri.

And although he could not ſubmit to the ſhackles of that narrow philoſophy, ſo ſtrongly recommended and enforced by his new preceptor, yet he appears to have been principally determined by his advice to dedicate himſelf to phyſic; the ſtudy of which comprehends ſuch a variety of literary purſuits as ſeemed congenial to the zeal and activity

* Many of his biographers have confounded theſe two facts; and, from a natural proneneſs to exaggeration, have aſſerted, that at Bienne, Haller, with a greatneſs of mind above his years, burned his poetical compoſitions, from a ſtrong conviction that poetry tended to alienate his mind from the ſeverer ſtudies: whereas, the very contrary happened. He ſaved his poetical pieces in preference to his other papers, and burned them afterwards, becauſe they would have diſgraced his reputation; although as juvenile productions, they were not wholly without merit. I have in this inſtance preferred the authority of his particular friends, Balthaſar and Tſcharner, to his other biographers, who had not ſuch opportunities of obtaining the truth. Beſides, as a confirmation of their evidence, Haller did not intermit his poetical ſtudies; and wrote at Tubingen his *Morgen gedanken* and *Sehn-Sucht*, which are the earlieſt ſpecimens he ever gave to the public.

of his capacious mind. He no ſooner formed this reſolution, than he adopted a more regular and uniform plan, than he had hitherto been able to purſue: he removed towards the end of 1723, to the univerſity of Tubingen, where he proſecuted his ſtudies, under the profeſſors Camerarius and Du Vernoy, with that unwearied application which never forſook him. From Camerarius he learned thoſe ſound principles of rational philoſophy, which teach us firſt to doubt, and afterwards to believe, and which are equally removed from credulity and ſcepticiſm. From the lectures of Du Vernoy he imbibed his firſt taſte for botany, and made ſo rapid a progreſs in the ſtudy of anatomy, that his maſter from ſeveral diſſertations predicted his future proficiency. Notwithſtanding his ſtrong and invariable attachment to theſe two branches of natural hiſtory, he repreſents himſelf as ſtudying, *invitâ minervâ*, againſt nature; anatomy though he could not ſupport offenſive ſmells, and botany though he was extremely ſhort-ſighted. At Tubingen he alſo diſtinguiſhed his knowledge in mineralogy by refuting the error of Tournefort, in aſcribing to foſſils a vegetating power.

During his continuance in that univerſity, he gave an inſtance of controul over his paſſions; a difficult conqueſt for a young man of ſtrong feelings and lively imagination. A ſingle deviation into exceſs, into which he was hurried by the example of ſome of his fellow-pupils, ſo greatly affected a perſon like him, no leſs enamoured of virtue, than ſuſceptible of ingenuous ſhame, that he inſtantly formed a reſolution to abſtain from wine, and adopted a ſtrictneſs of morals, which renders highly probable the aſſertion of Condorcet, his French encomiaſt, that he was deſcended from a family in which piety might be ſaid to be hereditary.

In 1725, Haller repaired to Leyden, to which place he was drawn by the great reputation of Boerhaave. Here he found a more ample field for the improvement of his mind, and the diſplay of his abilities. He became the favourite ſcholar of Boerhaave, by whoſe example and encouragement he ſtrengthened his growing inclination for botany. He noted down his maſter's lectures on the *Inſtitutes of Medicine* with ſuch preciſion, as afterwards gave birth to one of his moſt uſeful publications. He continued his anatomical ſtudies under Albinus, then riſing into fame, and the venerable Ruyſch, who ſo highly improved the art of injecting anatomical preparations. The precarious ſtate of his health, probably occaſioned or at leaſt increaſed by his intenſe application, induced him to accompany two of his countrymen through part of Germany. On his return in 1726, he received his doctor's degree, though only in the nineteenth year of his age, and publiſhed on that occaſion his inaugural diſſertation *de Ductu ſalivali Coſchwiziano.*

In 1727 he viſited England, was favourably received by Cheſelden, Douglas, and Sir Hans Sloane; and improved his knowledge of medicine and ſurgery under the auſpices of thoſe celebrated men. At Paris, whither he next directed his courſe, he ſtudied botany under Geoffroy and Juſſieu; anatomy under Le Dran and Winſlow, a celebrated ſurgeon. Winſlow was indeed his favourite maſter, whom he propoſed to his diſciples as the beſt model for their imitation, as an anatomiſt, who, ſhackled by no ſyſtem, deſcribed ſimply and faithfully what he himſelf obſerved in his diſſections.

Haller propoſed to continue his travels to Italy, that country where medicinal knowledge firſt revived in the darker ages, and where,

"Smit with the love of ſacred ſong,"

he might indulge his enthuſiaſm and improve his taſte in claſſical literature; but the uncertain ſtate of his health, the *maladie du pays* which ſo remarkably affects the Swiſs in foreign parts, and on which he has compoſed a poem, together with the advice

of his friends, prevailed over his inclination, and induced him to return to his native city.

In his way to Bern he ſtopped at Baſle, in order to ſtudy mathematics under the celebrated John Bernoulli; and in this, as well as in every other inſtance of his life, applied with ſuch indefatigable perſeverance, as if that ſcience was the ſole object of his future reſearches. His proficiency in theſe ſtudies is ſufficiently proved by ſeveral treatiſes ſtill extant in manuſcript on arithmetic and geometry, and particularly by his remarks on the Marquis de l'Hoſpital's Analyſis of Infiniteſimals, and his attachment to them by his being deeply employed in a profound calculation on the day of his marriage.

But though he made ſuch a progreſs as aſtoniſhed Bernoulli himſelf, he continued his other purſuits, being appointed to read lectures on anatomy during the ſickneſs of the profeſſor. While he fulfilled the duties of that office, he alſo attended the lectures of Tzinger on the practical parts of Medicine; thus at the ſame time diſplaying, with equal propriety, the dignity of a profeſſor, and the humility of a pupil.

During the ſummer of 1729, he accompanied his friend John Geſner into the mountains of Switzerland; an excurſion rendered memorable by its ſuggeſting to him the plan of a *Flora Helvetica*, and by inſpiring his poem on the Alps, which he compoſed in the twenty-firſt year of his age; a poem as ſublime and immortal as the mountains which are the ſubject of his ſong.

Not long after his poem on the Alps, he wrote his ethic epiſtles, on the Imperfection of Human Virtue, on Superſtition and Infidelity, on the Origin of Evil, on the Vanity of Honour, Various Satires, Doris, a Paſtoral on his firſt wife, and his much admired Elegy on her death. It is a convincing proof of Haller's verſatile genius and mental powers, that he ſo eminently excelled in poetry, which, except in his early youth, he never conſidered otherwiſe than as an amuſement, either to ſoothe him under afflictions, and in the bed of ſickneſs, or to conſole him for the envy and neglect of his contemporaries.

The ſoundeſt German critics place Haller among the moſt eminent of their poets; and conſider ſublimity as the grand characteriſtic of his writings. They acknowlege, that he improved the harmony and richneſs of his native tongue; that he poſſeſſed the higheſt powers of invention, and great originality both in his ideas and language; that he is the true colouriſt of nature; that he ſounded the depths of metaphyſical and moral ſcience; that he equally excelled in pictureſque deſcriptions, in ſoft and delightful imagery, in elevated ſentiments, and philoſophical preciſion. A few ſupercilious critics have reproached his poetry with occaſional obſcurities; and accuſe him of introducing a new language affectedly differing from the common modes of diction. Cold criticiſm may cenſure; but twenty-two ſucceſſive editions of his German poems, and the tranſlation of them into the principal languages of Europe, prove, that they poſſeſs the great aim of poetry, that of pleaſing and intereſting the reader. And it may be remarked with truth, that although Haller's ſtupendous labours in erudition and ſcience render his poetical talents of inferior account; yet had he confined himſelf to the muſes, poetry alone would have immortalized his name.

It is time to accompany Haller to his native city, where he returned, in 1729, expecting from his countrymen the ſame reſpect and patronage, he had ſo liberally received abroad. But he had the mortification to experience that neglect and envy to which every man of genius is expoſed in his own country, and which he ſeems to have augmented by his ſatirical compoſitions.

He continued three years without having the intereſt to procure any public employment; though he prevailed on government to eſtabliſh an anatomical theatre, and gave

lectures gratis; yet he did not ſucceed in obtaining the place of phyſician to the hoſpital, which he much deſired. He alſo ſolicited a profeſſorſhip, and was repulſed. He too ſenſibly felt theſe diſappointments, and expreſſed his impatience and indignation in his ſatirical poems, while he redoubled his application and ſervices in order to force himſelf into public notice.

The firſt diſtinguiſhed tribute to his literary talents was paid by the Royal Society of Upſala, which, in 1735, choſe him a member. This election was the prelude to more honourable and beneficial employments; in the ſame year his countrymen at length acknowleged his merit, by appointing him director of an hoſpital and public librarian. As director, he diſtinguiſhed himſelf by his zeal and humanity; as librarian he beſtowed great pains in arranging the books, and in forming the firſt catalogue. Scarcely any branch of literature, however remote from his uſual occupations, was omitted by Haller, whenever an opportunity preſented itſelf, either of improving his general knowledge, or of being uſeful to ſcience. Finding in the public library a collection of antient medals, which had been hitherto neglected, he took conſiderable pleaſure in claſſing them. His love of hiſtory induced him to pay great attention to the ſtudy of medals, which he juſtly conſidered as the moſt authentic documents of hiſtorical truth, and the moſt certain monuments to aſcertain the ever-fluctuating ſtate of language.

His literary reputation began now to ſpread by various botanical, anatomical and medical publications, and by a collection of poems *, which firſt made its appearance in 1732.

At length, in 1736, he received, unſolicited, the offer of the profeſſorſhip of phyſic, botany, and ſurgery, in the univerſity of Gottingen, newly eſtabliſhed by George the Second. Notwithſtanding all the advantages and honours which accompanied this offer, he, for ſome time, heſitated whether he ſhould accept it. He had, in 1731, eſpouſed a young lady of good family, whoſe great beauty and accompliſhments were rendered ſtill more endearing by her affectionate ſubſervience to his manner of life. She had brought him three children, and theſe ties attached him more ſtrongly to his native place where his merits procured him many ſincere friends, and the air of which he conſidered as in ſome reſpect neceſſary for the preſervation of his health. On the other hand, the honour of being invited by ſo great a monarch, the dignity of the eſtabliſhment to which he was called, and the conſideration of having a more ample theatre for the improvement of his knowledge, induced him to remove to Gottingen.

He quitted Bern with much regret; preſaging the heavy ſtroke which overtook him ſoon after his arrival in that univerſity; he loſt his wife. The death of his beloved Marianne, whoſe memory he has celebrated in a pathetic elegy, afflicted him ſo deeply, that it almoſt brought him to the grave. In this criſis of deſpondency he redoubled his application, as the moſt probable means of ſubduing his ſorrow, and the duties of his ſtation forced him from the contemplation of his own grief into public life.

During ſeventeen years, in which he reſided at Gottingen, where his abilities expanded in proportion as his opportunities of acquiring knowledge increaſed; he obtained from government the eſtabliſhment of a botanical garden, which he ſuperintended; of an anatomical theatre, a ſchool for midwifery, and a college for the improvement of ſurgery. He formed the plan for a Royal Society of Sciences, of which he was appointed perpetual preſident.

The comprehenſive mind and verſatile genius of Haller, united with his unremitting diligence and ardour in all his purſuits, enabled him to cultivate with uncommon ſucceſs a variety of knowledge. Had not the great Swede pre-occupied the field, Haller

* *Verſuch Schweitzeriſcher Gedichte.* The beſt edition is printed at Bern, 1775.

would

would have ſtood the firſt among his contemporaries as an improver of botany *. Yet botany was not among his earlieſt purſuits: for he informs us, that he had made no advances in it until his return from his travels; during his reſidence at Baſle, in the year 1728, as if inſpired, he ſays, by the genius of that place, which had nurtured the Bauhins, and where at that period botany was ſucceſsfully cultivated by Staehlin, he laid the deſign of his future Flora. From this time he made annual journeys into various parts of Switzerland, and principally among the Alps. He cultivated the correſpondence of the moſt eminent botaniſts, particularly with Scheutzer, Ludwig, Linnæus, Van Royen, and Dr. John Geſner of Zuric, who alſo meditated a deſign to publiſh a Swiſs Flora, and freely communicated his materials to Haller.

His eſtabliſhment at Gottingen enlarged his views and opportunities; and at length, in 1742, his great botanical work on the plants of Switzerland, the reſult of fourteen years ſtudy, made its appearance. It was entitled, *Enumeratio Methodica Stirpium Helvetiæ*, in two volumes, folio, and was the moſt copious Flora ever publiſhed, compriſing 1840 ſpecies. The preface contains a compendious deſcription of Switzerland, particularly the Alps; an account of the authors who had written on the Swiſs plants; the recital of his own journeys; acknowledgments to thoſe who had aſſiſted him; concluding with the order and method which he purſued.

After the preface follows a chronological account of 268 volumes, cited in the work, each accompanied by a general character; in which, with great candour and impartiality, he points out the merit or demerit of the author, in the manner which he afterwards purſued in the *Methodus Studii Medici*, and in the *Bibliotheca Medicinæ*. This is a very uſeful and entertaining part of his work, as it forms almoſt a hiſtory of the progreſs of the ſcience from the time of Brunfelſius to his own. He next delineates his own ſyſtem of botany, according to which the plants are diſpoſed. Throughout this great work Haller is entirely an original, not ſatisfying himſelf with giving the deſcriptions of former writers, he appears every where to have deſcribed the plant himſelf, and to have formed new genera, and commonly new ſpecifical characters for the whole, accommodated to his own ſyſtem. He acquaints us, that it was his cuſtom to write down the natural characters of each plant on the day he diſcovered it.

In treating on each ſpecies he has not only added a moſt copious number of ſynonymes, but appears to have conſulted all the old authors, extracted their ſynonymes with uncommon diligence and ſingular diſcrimination, and arranged them, as much as poſſible, in chronological order; a method highly worthy of imitation, as it exhibits, at one view, a brief hiſtory of the plant, by pointing out the firſt diſcoverer, and the regions of its growth. This, to the curious botaniſt, is a very meritorious part of Haller's labour. To each plant is ſubjoined a ſummary account, from the beſt writers, of the qualities and uſes, both economical and medical. The work is embelliſhed with plates of ſome rare ſpecies, remarkable for their exactneſs and delicacy.

Having, in 1741, obtained from the King of Great Britain the eſtabliſhment of the phyſic garden at Gottingen, Haller publiſhed the following year a catalogue of its plants; this was but a ſmall volume, but the liſt ſerved to ſhew the diligence with which he fulfilled the intention of the royal founder. In 1753 he much enlarged it, and comprehended the plants ſpontaneouſly growing in the environs, eſpecially thoſe of the Black Foreſt. He informs us, that this volume was the production of a three months' vacation, and laments, that the importance of his other employments prevented him

* I ſhould not have preſumed to give any detailed account of Haller's botanical, medical, or anatomical works, had I not received aſſiſtance on theſe ſubjects from my very judicious friend Dr. Pultney.

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from fulfilling his intention of deſcribing the plants of Germany at large. This little work is curious, ſince it exemplifies his ſyſtem as extended to exotics, of which the new and rare kinds are deſcribed; but the ſmall ſize of the volume precluded the introduction of the generical characters.

In 1745, he gratified the botaniſts by a new edition of the *Flora Jenenſis* of Ruppius, and, that he might do juſtice to the work, he took a journey to Jena, where he gained acceſs to the papers and *hortus ſiccus* of the author. He prefixed to this book anecdotes of this extraordinary man, and, by reforming and augmenting the whole from his own diſcoveries, he in ſome meaſure made it a *Flora Germanica*. Theſe performances were by no means the termination of his botanical labours. On his return to Switzerland he continued his diſcoveries in this branch of natural hiſtory; he alſo ſent, at his own expence, perſons properly qualified into the leſs frequented parts of the Alps.

The reſult appeared in a new edition of the *Enumeratio*, which was ſo much improved, that he conſiders it as a new work. It was publiſhed in three volumes, folio, in 1768, under the title of *Hiſtoria Stirpium indigenarum Helvetiæ, inchoata*. The ſubject is arranged in his own method, with the alteration of inverting the order of the claſſes, beginning with the *Compoſitæ*, or the *Syngeneſia* claſs of Linnæus, and ending with the *Cryptogamia*, which ſtood firſt in the *Enumeratio*; both of which are objectionable, as ſubjecting the ſtudent to the moſt difficult parts of the ſyſtem at his entrance on the ſtudy. Several intereſting particulars of the former publication are alſo omitted in theſe volumes, of which curious botaniſts will much regret the loſs; for, though he has inſerted, with enlargement, the phyſical geography of Switzerland, together with the account of thoſe authors who had previouſly inveſtigated the plants of the country, and has recited his own excurſions for that purpoſe; yet he has not introduced the critical catalogue of the authors, ſatisfying himſelf with giving a bare liſt of all the botanical writings, from the time of Theophraſtus to 1768. It is ſtill more to be regretted, that Haller has ſuppreſſed in this edition a great number of ſynonymes under each plant, inſerting only a few of later date; for although, in all poſſible inſtances he has introduced the ſynonymes of Linnæus, yet he has, unfortunately for ſuch as uſe the works of both, omitted the trivial names; a circumſtance which renders his book much leſs uſeful to thoſe who are converſant in the ſexual ſyſtem. Yet theſe defects are doubtleſs more than compenſated, by the innumerable improvements made in the deſcriptions, both of the genera and ſpecies, by the great addition to the number of plants, which are extended from 1840 to 2486, of which more than 800 are of the Cryptogamia claſs; Haller having, after Micheli, beyond any of his contemporaries, enlarged the order of Fungi, of which, he tells us, he had paintings of more than 400 ſpecies made under his own inſpection. It is not, however, ſurpriſing that Switzerland ſhould produce a greater variety of vegetables than the middle parts of Europe; when we reflect that the alpine ſituations afford growth to the plants of the arctic regions, and the warm vallies, to many of thoſe common to ſouthern. The value of this edition is much enhanced by enlarging the obſervations on the uſes of plants; and by referring to his authorities for what is not his own, with his accuſtomed accuracy. As an acceſſion to this work, it may be added, that the author has in the notes, under each genus, introduced the plants of Theophraſtus and Dioſcorides, in as many inſtances as they admit of being aſcertained.

Few botaniſts have laboured more than Haller, and yet his diſcoveries in botany occupied only a comparatively ſmall portion of his time. To ſuch as feel not, in the fulleſt extent, that enthuſiaſm which the love of ſcience inſpires, it may appear a paradox to aſſert that the diſſection of human bodies could be a pleaſurable employment; yet Haller,

ler, in 1742, pronounced a ſpirited eulogium, in the univerſity of Gottingen, on the ſubject, and his zeal in the purſuit of anatomical diſcoveries was attended with uncommon ſucceſs. He ſeems early to have apprehended, that the knowledge of the diſtribution of the arterial ſyſtem had not kept pace with that of the bones, muſcles, nerves, and viſcera, which had been ſeparately and ably treated by men of eminence. Haller, therefore, wiſhed to illuſtrate more perfectly this part of the human frame, and gave to the world a more complete ſyſtem on the ſubject than had yet appeared. He publiſhed the firſt part of this great work in 1743, and the laſt in 1756. His tracts on other parts of anatomy, when collected in 1768, formed three volumes in quarto. The curious reader may ſee an enumeration of his many diſcoveries in anatomy and phyſiology, at the head of the ſixth volume of his Phyſiology: although ſome of theſe diſcoveries may have been conteſted by his contemporaries, yet his unalienable right to moſt of them, and the light particularly which he threw upon incubation, oſſification, irritability, and ſeveral other parts of the animal economy, will unqueſtionably ſecure to him a large and honourable ſhare of fame with poſterity.

Haller's emoluments augmented as his merits were diſplayed; and honours flowed upon him from all quarters. He was elected in 1748 into the Royal Society of Stockholm, into that of London in 1749, and in 1754 choſen one of the eight foreign members in the Academy of Sciences at Paris. In 1739 he was appointed phyſician to George the Second, and king's counſellor in 1740. In 1749 the Emperor Francis conferred on him letters of nobility at the requeſt of George the Second, and about the ſame time the King, in a viſit which he paid to the univerſity, diſtinguiſhed Haller with particular marks of approbation; an honour which the author gratefully acknowledges in an Engliſh publication, entitled, "A ſhort Narrative of the King's Journey to Gottingen," and in the dedication to George the Second, prefixed to his edition of Boerhaave's *Methodus Studii Medici*.

He declined, in 1745, an invitation to Oxford, which would probably have terminated in his nomination to the profeſſorſhip of botany, vacant by the death of the celebrated Dillenius; a ſecond from the univerſity of Utrecht, and, in 1750, a third from the King of Pruſſia, with the offer of a very conſiderable penſion.

But of all his promotions none gave him more real ſatisfaction than his election into the Great Council of Bern, as it inſured to him a retreat with dignity, and probably with emolument, in his native city, to which he looked forward with affection and attachment.

At length, in 1753, induced by the precarious ſtate of his health, by the deſire of removing from Gottingen, which he called the *grave* of his wives, and by his earneſt anxiety to dedicate the remainder of his days to the ſervice of his country, he took a journey to Bern, in order to procure an eſtabliſhment, which, though not adequate to his preſent appointments, might place him in the boſom of his beloved Switzerland. Soon after his arrival, he fortunately obtained by lot the office of Amman. Although this office was of ſmall emolument, yet, as it might be conſidered a prelude to future appointments, and gave him an immediate opportunity of ſerving his children, he reſigned his profeſſorſhip at Gottingen, and ſettled at Bern. Such was the general joy of his countrymen on this event, that Morikoſof ſtruck a medal to commemorate his return.

Having formed this reſolution, he could not be ſhaken by the moſt ſplendid offers. He declined, in 1755, the preſſing invitation of Frederic the Second, to ſuperintend the academies of Pruſſia, and to accept the chancellorſhip of the univerſity of Hall, vacant by the death of Wolff. In 1767, he rejected the offer of a very advantageous and honourable

nourable ſettlement at St. Peterſburgh, made by Catharine the Second, and, in 1770, the ſtill more dignified promotion to the chancellorſhip of the univerſity of Gottingen, with a very conſiderable appointment; although George the Third wrote not only to Haller but to the Senate of Bern, requeſting their influence to prevail on him to accept it.

His grateful country rewarded this diſintereſted attachment with the moſt liberal and unbounded confidence, and employed his talents in the public ſervice. In 1757, he was ſent to reform the academy of Lauſanne, and in the following year was deputed by the Senate to examine ſome curious remains of antiquity diſcovered at Culm. About the ſame time he was appointed director of the ſalt works at Bex and Aigle, with an annual ſalary of £500. During the term of this appointment, which continued ſix years, he reſided at La Roche. In this retirement, he employed himſelf in ſuperintending and improving the ſalt-works, of which he has given a ſhort account; in making occaſional excurſions into the neighbouring country, which he has likewiſe deſcribed; but more particularly diſtinguiſhed his retreat by preparing and publiſhing his great work on phyſiology.

Notwithſtanding the amplitude and ſucceſs of Haller's labours in the various branches of medical knowledge, it was principally on phyſiology, which ſeems to have been his peculiar delight, that he diſplayed the whole force of his genius, and founded his merit as an *inventor* in ſcience.

His outlines of Phyſiology, or *Primæ Lineæ Phyſiologicæ*, publiſhed at Gottingen in 1747, delineate the plan, and were the prelude to his immortal work, which he modeſtly ſtyles *Elements* only, or *Elementa Pyſiologiæ Corporis Humani*, in eight volumes in quarto, which ſucceſſively made their appearance from 1757 to 1766. In conformity to Boerhaave's plan, this part of the ſcience of phyſic is emancipated from theoretical ſubtlety, from the ſhackles of metaphyſical, mechanical, and chymical hypotheſes, with which, for ages, it had been incumbered, and, for the firſt time, built on the true baſis of anatomical ſcience.

The exquiſite knowledge which he has diſplayed in relation to the ſtructure of the human body, his indefatigable reſearches into the diſcoveries and opinions of all his predeceſſors, the judicious ſelection of them to eſtabliſh his own, his ſkill in comparative anatomy, and the application of the whole to illuſtrate the human frame, afford a ſtriking inſtance of learning, induſtry, penetration and genius.

On his return to Bern he was elected member of the chamber of appeal for the German diſtrict of the council of finances, of the committees for matrimonial affairs, and for improving the ſmall livings in the French diſtrict of the canton; he was alſo appointed perpetual aſſeſſor of the council of Health, with an annual ſalary of about £100 as a token of his country's gratitude for having declined ſo many ſplendid offers from foreign courts, and for preferring his native place to the advancement of his fortune. In theſe ſeveral offices he performed eſſential ſervices to the ſtate by promoting the moſt uſeful inſtitutions, propoſing neceſſary alterations, and framing new laws and ordinances. In his capacity of aſſeſſor to the Chamber of Health, he was particularly uſeful in forwarding the moſt important regulations; ſuch as the prohibition of empirics, the recovery of drowned perſons, and the means to prevent the ſpreading of the diſtemper then prevalent among the cattle in various parts of Europe.

He alſo ſhewed himſelf a friend to humanity, by the zeal with which he aſſiſted in obtaining from government a public eſtabliſhment for orphans, by his activity in providing a fund, and by drawing up the plan. As a member of the Economical Society, he laboured much to improve the ſtate of agriculture, and made many experiments for

that purpoſe. In the meetings of the Great Council he delivered, on important occaſions, his opinion with a manly freedom and lively eloquence, the reſult of the ſoundeſt judgment and the moſt feeling heart.

In 1766 and the following years this great man, who had hitherto enlightened ſcience from his cloſet, diſplayed in the theatre of public life the more active and diſtinguiſhed parts of a patriot and politician. He re-eſtabliſhed the harmony and ſettled the diſputes between the Vallais and the canton of Bern by a ſucceſsful negociation, in which he fixed the boundaries of the two ſtates; he was aſſociated with the moſt enlightened characters of the republic in terminating the diſſenſions of Geneva; he drew up the principal diſpatches to the court of Verſailles on the ſubject of the changes projected at Verſoi, on which occaſion he held a perſonal conference with the French ambaſſador, and was employed to prepare the plan of a treaty between the canton of Bern and the Elector of Bavaria, relating to the purchaſe of ſalt.

On the concluſion of theſe public employments Haller, who had now attained the ſixty ſecond year of his age, withdrew from the buſtle of life, and lived in a retired manner, fulfilling the duties of a father, a citizen, and a magiſtrate; and, although his health gradually declined, yet his activity was undiminiſhed. He reſumed his literary labours, which had been neceſſarily interrupted amidſt his other more important avocations. He publiſhed, in 1768, his hiſtory of Swiſs plants; and, in 1771, the firſt part of his *Bibliotheca Medicinæ*.

No part of Haller's writings affords a more ſtriking example of the value of early and perſevering induſtry, than this publication. That habit which he formed ſo early as the eighteenth year of his age, of noting his opinion of books and authors, accumulated a conſiderable maſs of materials, and thus enabled him afterwards to turn them to very uſeful purpoſes. By theſe means the foundation of his *Medical Library* was laid, even before he gave the improved edition of Boerhaave's *Methodus Studii Medici*, in 1751.

Boerhaave uſed to recommend to his ſtudents the books which they ought to conſult on each ſubject; this catalogue was, in 1726, ſurreptitiouſly and inaccurately printed, and formed only a ſmall volume in octavo; many neceſſary obſervations were forgotten, and various authors both modern and ancient omitted. Haller undertook to ſupply theſe deficiencies; and extended the publication to two volumes in quarto. In order to appreciate the merits of this compilation, it is neceſſary to obſerve, that various lexicons and catalogues of medical authors were extant; but the writers had merely given bare liſts and titles, unaccompanied by that critical diſcrimination of the deſign, doctrine, and general merit of each author, which rendered theſe volumes ſo highly acceptable. In this manner Haller has given, under that claſſical method which Boerhaave recommended, his opinion of more than four thouſand volumes.

In the extenſion of this plan, as it appears in his own *Bibliotheca*, Haller begins, by tracing the hiſtory of each branch of medicine from its origin through the preceding ages, and, by connecting the hiſtory of each in the ſeveral periods, has, in ſome meaſure, made his publication a compendious hiſtory of phyſic.

His extenſive knowledge of ancient and modern languages enabled him to comprehend a large field; his indefatigable induſtry, united to great penetration in inveſtigating the doctrines of the ancients, equally exhibits his erudition, and that ſound judgment by which he has appreciated the merit of thoſe ſages of phyſic, in a manner highly intereſting and inſtructive. In his judgment of the moderns he is candid and impartial; his great knowledge of his ſubjects qualified him to diſtinguiſh all original doctrines, new facts and obſervations, and to guard againſt ſuch errors as might miſlead young and incautious

incautious practitioners, who are too apt to be influenced by imbibed theories, and prejudice towards particular authors.

He has given additional value to his work, by annexing to the account of celebrated books short biographical anecdotes of the authors. He mentions all the different editions that came to his knowledge, particularly marking such as were in his own library. And it is a matter of astonishment that, in this manner, he notices and reviews not fewer than 11,000 volumes. As the literary history of physic was among the favourite objects of Haller, this publication cannot but be highly acceptable to such as possess a congenial taste; while the general use and information it affords are sufficiently obvious. Eight volumes were published beween the years 1771 and 1778. The anatomical, including the physiology, the botanical, and the chirurgical, were each comprised in two volumes, and bring down the respective subjects nearly to the present time. Two, on the practice of physic, were published by Haller himself, a third after his decease by Dr. Tribolet, and a fourth by Dr. Brandis of Childensheim, from the manuscript of Haller, which the learned editor has considerably augmented.

Haller employed the latter period of his life in sending extracts from eminent publications for the *Bibliotheque Raisonnée*; furnished many of the articles for the supplement to the Paris Encyclopédie, for the quarto improved edition of the same work published at Yverdun, and for the dictionary of natural history printed at the same place. He meditated also a new edition of his great physiological work, of which he put forth the first volume in 1777, only a few months before his death.

His active imagination brooding on the civil and political affairs in which he had been lately engaged, produced between 1771 and 1774, his three political romances, Usong, Alfred, and Fabius and Cato, which treat of the despotic, monarchical, and republican governments. In Usong he sketches, with a masterly hand, the abuses of absolute authority, and sets forth, in the character of the principal personage, the happy effects which may be derived from a virtuous and intelligent sovereign, even amidst the horrors of oriental despotism. In Fabius and Cato he describes, with an animation and spirit worthy of ancient Rome, but with a partiality natural to a republican, the aristocratical government as most friendly to the display of patriotism, and most congenial to the exertions of genius. In Alfred he displays the advantages of a limited monarchy, wherein the balance of power is wisely distributed, and which, while it avoids the extremes of either, enjoys the benefits of both. In these romances he discovers sound principles of legislation, great political sagacity, a deep insight into human nature, and an extensive aquaintance with history.

When we consider Haller as a man of piety and a Christian, we observe him tracing, from a comprehensive view of the creation in its grandest as well as in its minutest parts, the *necessary* existence of a Supreme Being, and the great principles of natural religion. We see him demonstrating the divine origin of Christianity from a profound study of the New Testament, from the excellence of its morality, its manifest influence over the happiness of mankind, and its tendency to meliorate our nature; we find him proving himself, both in his life and writings, a zealous friend and able advocate of the revealed doctrines.

Haller, at a very early period of his life, undertook the defence of natural and revealed religion. In 1732, in his preface to his poetry, he declared himself firmly convinced of their truth; in 1747 he rejected with horror the dedication which La Metrie offered to prefix to his work entitled "*L'Homme Machine*," and he declared in various literary journals, that he neither acknowledged as his friend, or his disciple, a man who entertained such impious notions. In a preface which he published in 1751, to Formey's abridgment of Crouzza's "*Examen du Pyrrhonisme*," he paints in the strongest colours,

colours, the dreadful effects of infidelity both on ſociety and individuals. He put forth, in the German tongue, "Letters to his Daughter on the Truth of the Chriſtian Revelation;" he publiſhed an extract from Ditton's "Truth of the Reſurrection of Jeſus Chriſt," which he acknowledges to have firſt cleared any doubts he entertained on that ſubject. He avows, at the ſame time, that he received infinite ſatisfaction from the ſtudy of the New Teſtament, becauſe he was never more certain of holding converſe with the Deity, than when he read his *will* in that divine book.

In 1775, he finally gave to the public, alſo in the German language, "Letters concerning ſeveral late Attempts of Freethinkers yet living againſt Revelation." In this work the author examines and refutes the objections to Chriſtianity, advanced in ſo lively and dangerous a manner by Voltaire in his *Queſtions ſur l'Encyclopedie*. "If this latter publication," adds Sennebier, "may be conſidered as an Index to the Doubts and Arguments againſt the Chriſtian Religion, the work of Haller may be entitled an Index to the Anſwers in favour of the ſame Revelation, to be conſulted by thoſe who wiſh impartially to diſcuſs both ſides of this important queſtion. When learning and philoſophy, inſtead of being employed in ſupporting ſceptical tenets by artful ſophiſtry, thus lend their united aſſiſtance to the cauſe of religion, they truly become an honour to the poſſeſſor, and a benefit to ſociety.

But even this great and good man was not exempt from a too anxious ſolicitude for his welfare in a future ſtate. That depreſſion of ſpirits, which ought juſtly to be conſidered as the effects of diſeaſe, and the warmth of his imagination conſpiring perhaps with the narrow principles of Calviniſm, in which he had been educated, led him to reflect rather on the *juſtice* than the *mercy* of the Deity, and to bewilder himſelf in the endleſs mazes of predeſtination and grace. In one of his deſponding fits, he compared himſelf to a man placed on the edge of a precipice without any ſupport, and expecting every inſtant to fall. At another moment, animated with a paſſion for ſcience, he breaks out, in a letter to his friend Bonnet, into an exclamation, expreſſive of his regret to quit a world which he had improved by his diſcoveries, and which he might ſtill further illuminate by his zeal and application. "O my poor brain, which muſt return to duſt; and all the knowledge and information which I have been collecting with ſuch unwearied labour, will *fade away* like the dream of an infant."

Theſe little weakneſſes of a great mind, overpowered by conſtitutional irritability, and ſtruggling againſt early prejudices, are more intereſting to the man who feels and reſpects the imperfections of human nature, than the moſt pompous and exaggerated accounts of *unerring* wiſdom, or *uniform* virtue. And it is a pleaſing ſatisfaction to learn, that reaſon and religion roſe ſuperior to the gloomy deſpondency of ſickneſs; and that Haller met death with the calmneſs of a philoſopher, and the faith of a Chriſtian. In a letter which he wrote, a few days before his deceaſe, he ſpeaks indeed of the tremendous grandeur of eternity, but with hope rather than with fear, and looks back upon his paſt life with ſatisfaction: amidſt a few complaints uttered on his painful ſufferings, he mentions his country with the moſt ardent affection, and offers up his laſt prayer for its preſervation and welfare.

He continued his literary labours, and preſerved his ſenſes and compoſure to the moment of diſſolution; he beheld his end approaching without fear and regret; "My friend," he ſaid to the phyſician who attended him, "I die, my pulſe is ſtopped," and then expired. He deceaſed on the twelfth of December 1777, in the ſeventieth year of his age.

Thus lived, and thus died, the great Haller; a man to whom Michaelis, the eminent orientaliſt, juſtly applies an obſervation on the genius of Ariſtotle; "*Neque cælo, neque*

neque terrâ, neque mari quicquam relinquere voluit incognitum, indole præterea adeo mirabili, ut ad ſingula natum præcipuè dicas *."

In his perſon Haller was tall and majeſtic, of a ſerious and expreſſive countenance; he had at times an open ſmile, always a pleaſing tone of voice, uſually low, and ſeldom elevated, even when he was moſt agitated. He was fond of unbending himſelf in ſociety, on thoſe occaſions was remarkably cheerful, polite, and attentive; he would converſe with the ladies on faſhions, modes of dreſs, and other trifles, with as much eaſe as if he had never ſecluded himſelf from the world.

Bonnet informed me, that Haller wrote with equal facility the German, French, and Latin tongues; that he was ſo well acquainted with all the European languages, except Ruſſian, Poliſh, and Hungarian, as to ſpeak with the natives in their reſpective idioms. When he converſed on any topic of literature, his knowledge appeared ſo extenſive, that he ſeemed to have made that his particular ſtudy. His profound erudition in every branch of ſcience, is well known to all who are converſant with his works; but the variety of his information, and the verſatility of his talents, are thus delineated by a perſon † who was his particular friend. "He poſſeſſed a fundamental knowledge of natural hiſtory; was well read in hiſtory both antient and modern, univerſal and particular; and uncommonly verſed in the ſtate of agriculture, manufactures, trade, population, literature, and languages of the reſpective nations of Europe; he had read with attention the moſt remarkable voyages and travels; and was particularly converſant in the late diſcoveries which tend to illuſtrate the geography of the globe. He had even peruſed many thouſand novels and plays; and poſſeſſed ſuch an aſtoniſhing memory, that he could detail their contents with the utmoſt preciſion.

As it was his cuſtom to make extracts, and to give his opinion of every book which came into his hands, as well for his own private uſe, as for the Gottingen Review ‡, he read moſt new publications, and ſo eager was he uſually in the peruſal, that he laid them upon the table even when he was at dinner, occaſionally looking into them, and marking thoſe parts with a pencil, which he afterwards extracted or commented upon. He made his remarks on ſmall pieces of paper, of different ſizes, which he placed in order, and faſtened together; a method he learned from Leibnitz.

He derived from nature extreme ſenſibility, or rather irritability of temper, which is ever the child of genius. He ſpoke therefore from his own experience, when, in a letter to Voltaire, he thus expreſſed himſelf: "Providence holds with an equal hand the balance of human happineſs. He has loaded you with riches, he has loaded you with glory; but misfortune was neceſſary, and he preſerved the equilibrium by giving you ſenſibility. If my wiſhes could take effect, I would beſtow upon you that *tranquillity* which flies at the approach of genius, which is inferior to genius in relation to ſociety, but far ſuperior in regard to ourſelves: then the moſt celebrated man in Europe would be alſo the moſt happy §."

* He left nothing unexplored, either in the heavens, or on the earth, or in the ſea, and was of ſuch a wonderful capacity, that he ſeemed born for the immediate object of his purſuit.

† Ticharner Lobrede, &c. p 87.

‡ Haller reviewed, as his department for that literary journal, all publications on hiſtory, medicine, anatomy, natural hiſtory, and ſeveral miſcellaneous works, particularly thoſe which appeared in Italy.

§ *Il faut bien que la providence veuille tenir la balance égale pour tous les humains. Elle vous a comblé de biens; elle vous a comblé de gloire; mais il vous-falloit du malheur, elle a trouvé l'équilibre en vous rendant ſenſible.—Si les ſouhaits avoient du pouvoir, j'ajouterois aux bienfaits du deſtin; je vous donnerois de la tranquillité, qui fuit devant le genie, qui ne le vaut pas par rapport à la ſociété; mais qui vaut bien davantage par rapport à nous-même: des-lors l'homme le plus célèbre de l'Europe ſeroit auſſi le plus heureux.*

He was impatient under ſickneſs as well from extreme ſuſceptibility, as becauſe he was precluded from his literary occupations. He was fond, therefore, of taking violent remedies, more calculated to remove the immediate effects of pain, and to check his diſorder, than to cure it radically. In his latter years he accuſtomed himſelf to opium *, which, operating as a temporary palliative, only increaſed his natural impatience. This reſtleſſneſs of temper, which occaſionally diſturbed his tranquillity even in his younger days, and in the full flow of his health and ſpirits, was conſiderably heightened by the advances of age, and the diſorders which ſhattered his frame towards the cloſe of his life.

His correſpondence in every period of life was extenſive, punctual, and carried on in the Engliſh, French, German, Latin, and Italian languages. Six volumes of Latin epiſtles, and three in the German tongue, addreſſed to him from men of learning in various parts of Europe, have been given to the public, but his own have never made their appearance. It is much to be lamented, that he ſeldom preſerved any copies; being himſelf too much occupied for that purpoſe, and never ſufficiently rich to maintain a ſecretary. His two principal correſpondents to whom he opened his heart, were Bonnet of Geneva, and John Geſner of Zuric; to Geſner he wrote either in German or Latin, to Bonnet in the French tongue. This celebrated friend of Haller poſſeſſes ſeven manuſcript volumes of his letters; being an uninterrupted correſpondence of twenty-three years; begun in March 1754, and finiſhing only a few days before his death, in December 1777. This epiſtolary commerce comprehends a great variety of ſubjects, principally concerning phyſiology, natural hiſtory, the ſtructure of the globe, politics, morality, and religion. Haller being accuſtomed to conſult his friend on all occaſions, to diſcloſe his moſt ſecret thoughts, and to relate his diurnal occupations; theſe effuſions of the moment diſcover the ſucceſſive train of his ſtudies, the progreſs of his diſcoveries, and gradual advances in knowledge.

"Theſe letters of my moſt reſpectable friend," added Bonnet, "diſplay his genius, his underſtanding, and the goodneſs of his heart, more fully than any of his publications. His ſtyle, conciſe, energetic yet pictureſque, correſponds with the ſtrength and originality of his ideas; and he ſpeaks with no leſs ſublimity than conviction of the great truths of natural and revealed religion. Though he treats the numerous advocates for infidelity, and particularly Voltaire, with ſufficient ſeverity; yet his heat is the ardour of conviction, and did not proceed from either pique or ſpirit of contradiction: he ſeemed as if he was perſonally intereſted in all queſtions on revelation, and pleaded its cauſe as if it had been his own. He is no leſs ſevere againſt thoſe writers, who exclude the intervention of a firſt intellectual cauſe in the creation and arrangement of the univerſe, and particularly cenſures the materialiſts who endeavour to deduce mechanically the formation of organized bodies. In a word, his philoſophy was entirely practical, becauſe it was entirely Chriſtian; and nothing ſecured his approbation, but what tended to improve the underſtanding, or to amend the heart."

I am concerned to find, that the publication of this correſpondence, between two ſuch enlightened and virtuous philoſophers as Haller and Bonnet, which in ſome works had been announced to the public, ſhould, for private reaſons, be relinquiſhed. Religion, morality, philoſophy, and learning, would be greatly benefited by this epiſtolary commerce.

* Zimmerman informs us, that he took daily ſo large a quantity as eight grains. Ueber de die Einſamkeit p. 216. ed. Leipſ. 1784.

Haller's library, consisting of about 4,000 volumes, was purchased for £2,000 by the emperor, for the public library of Milan, where I examined it in 1785. The collection is particularly rich in books of natural history, and is rendered invaluable from numerous annotations of Haller, written on the margins.

Haller was three times married, first to Marianne Wytsen, in 1731, who died in 1736. 2. To Elizabeth Buchers, in 1738, who died in childbed the same or the following year; both natives of Bern. 3. 1739, to Amelia Frederica Teichmeyer, a German lady, who survived him. He has written and published the lives of his two first wives. He left eight children four sons and four daughters, all of whom he lived to see established.

His eldest son, Gotlieb Emanuel, who was born in 1735, followed his father's example in dedicating himself to the service of his country, and to the pursuits of literature. He was elected member of the Great Council, and obtained various employments under government, particularly the bailliage of Nyon, in which situation he died in 1786. He distinguished himself as an author by various publications tending to illustrate the history and literature of Switzerland, and particularly by his *Schweitzer-bibliothek*, or Swiss Library, in 6 volumes 8vo. of which he lived to publish only the first. In this work, deservedly esteemed for method and accuracy, the indefatigable author enumerates all the books which treat of Switzerland, in all languages, and all the works published by the Swiss on all subjects. He even descends to the minutest articles which have appeared in reviews and journals, and in most instances, where the phblication deserves detail, analyses the contents, corrects the errors, and gives his opinion on the merits of the performance.

I was personally acquainted with the learned author, and am indebted to him for some curious information on Switzerland, and for several anecdotes relative to his illustrious father, which I have introduced into these biographical memoirs.

LETTER LVIII.—*M. Sprungli's Collection of Swiss birds.—Of the Bearded Vulture.*

M. SPRUNGLI'S cabinet of natural history, is remarkable for the collection of stuffed birds, both local and migratory, that are found in Switzerland. In 1776 this collection consisted of two hundred specimens; and when I last visited Bern, in 1786, had received an addition of fifty species.

One of the most remarkable birds in this collection, is the *vultur barbatus* of Linnæus, the *vultur aureus* of Gesner, or bearded vulture of the English ornithologists. As many fabulous tales have been related concerning its uncommon strength and rapaciousness; as great confusion has arisen from the variety of names applied by different naturalists to the same bird, and as some travellers have doubted whether this specimen is the large vulture of the Alps, or the golden vulture of Conrad Gesner; I shall subjoin a description of some particulars principally communicated to me by M. Sprungli himself, accompanied with a drawing of the head of the natural size.

This specimen was a female bird, caught in the canton of Glarus; it measured from the tip of the beak to the extremity of the tail, six feet six inches French * measure; and eight feet from the tip of one wing to that of the other expanded; it weighed when first taken, eleven pounds. This bird, though always called a vulture, yet differs from that genus, and is referable to the eagle, in having the head and neck co-

* Six feet eleven inches one-fifth English, and eight feet six inches six-fifteenths.

vered with feathers; whereas one of the diſtinctions of the vulture, according to Linnæus, is that the head is deſtitute of feathers.

Notwithſtanding this diſtinguiſhing mark, yet Linnæus was probably induced to claſs it with the vultures, from the general form of the body, and ſhape of the beak, which is the *firſt eſſential* characteriſtic in the genera of Birds.

M. Sprungli, however, is of opinion, that it might be claſſed between the vulture and the eagle; and Stor * propoſes to form a new genus of it, under the name of GYPAETUS, by the following characters:

Roſtrum rectum, baſi cera inſtructum ſetis porrectis confertiſſimis barbatum; apice auctum unco ſulcato.

Caput pennis tectum.

The ſpecific character he would define thus:

Gypaetus (grandis) albido-rutilus dorſo fuſcus, tænia nigra ſupra et infra oculos.

It inhabits the higheſt parts of the great chain of Alps which ſeparates Switzerland from Italy, forms its neſt in clefts of rocks inacceſſible to man, and uſually produces three young ones at a time, ſometimes four, if we may judge from thoſe which accompany the old birds, when they deſcend into the lower regions for prey. They live on animals which inhabit the Alps, ſuch as the chamois, white hares, marmots, ſnow hens, kids, and particularly lambs, from which circumſtance it is called *lammer-geyer*, or *lamb* vulture.

If common report may be credited, this rapacious creature ſometimes attacks even man and carries off children. M. Sprungli, without abſolutely denying the poſſibility of this account, has, notwithſtanding all his reſearches, never been able to aſcertain a well authenticated inſtance; and thence rather concludes it a fable invented by the peaſants to frighten their children. This ſpecies does not appear but in ſmall companies, uſually conſiſting of the two old birds and their young.

Conrad Geſner has given a ſhort but accurate deſcription of this bird under the name of *vultur aureus*, or gold-geyer †; and an engraving from a ſkin ſent to him from the Griſons. The figure though rudely executed, yet exhibits with ſufficient accuracy the diſtinguiſhing characters of the ſpecies and genus ſuch as the configuration of the beak, the legs feathered down to the claws, and particularly the beard. In fine a compariſon with the ſpecimen in Sprungli's collection evidently proves it to be the ſame bird.

Since this great naturaliſt, no other perſon ſeems to have deſcribed it from nature, except Edwards under the denomination of the bearded vulture. The deſcription of that bird, and the engraving ‡ from a ſpecimen ſent from Santa Cruz in Barbary, correſpond exactly with the *vultur barbatus* of Sprungli; and the head, if compared with the drawing annexed to this account, will be found to anſwer ſufficiently.

Sprungli alſo favoured me with the following remarks, in anſwer to thoſe travellers who aſſert, that his ſpecimen is not the large vulture of the Alps, ſometimes called, from its *yellowiſh* plumage, the *vautour jaune*, but a ſmaller ſpecies; becauſe the larger ſort meaſures occaſionally fourteen feet, or more, from the tip of one wing to that of the other. He poſſeſſes two ſpecimens of this bird; the one a full grown female, from which my deſcription and drawing are taken, meaſuring eight French feet: the other a male, but young, and ſomewhat leſs. He has examined four ſpecimens, neither of which meaſured more than nine feet; but as theſe ſpecimens were not full grown males,

* See Stor's Alpen Reiſen, vol. i. † See *Hiſt. Avium, edit. Frank.* ‡ See tab. 106. of his hiſtory.

he

he is ready to allow that an inſtance or two may poſſibly have occurred, in which this bird meaſured near twelve feet from tip to tip of the wings. Thoſe who give it a greater expanſion, have derived their information either from perſons who were not naturaliſts or from uncertain and exaggerated reports. The ſame remark may alſo be applied to the fabulous ſtories recorded by the peaſants, concerning its wonderful ſtrength as well as ſize. It is likewiſe to be obſerved, that the peaſants do not confine the name of *lammer-geyer* to this ſpecies; but extend it indiſcriminately to ſeveral large birds of prey, from whence has ariſen great confuſion of names, and much uncertainty in the accounts of this bird.

Some ornithologiſts ſeem to have formed of it ſeveral ſpecies, which on compariſon will appear to be the ſame, or only varieties of the ſame, ſpecies. Thus the bearded vulture, the cinereous vulture, and the fulvous vulture, which Mr. Latham has deſcribed as three different ſpecies, are probably the ſame bird as that in this collection. Of the firſt there can be no doubt, ſince Mr. Latham refers to the bearded vulture of Edwards, which I have ſhewn to be that of Sprungli. The cinereous vulture is deſcribed by Latham after Briſſon: "Beneath the throat hangs a kind of beard, compoſed of very narrow feathers like hairs; legs covered with feathers quite to the toes, which are yellow; claws black *. This deſcription accords with the bird in queſtion, and particularly in the beard, which is the diſtinguiſhing characteriſtic. The fulvous vulture of Latham is the griffin of Buffon, and the French naturaliſt doubts whether it is not a variety of Geſner's golden vulture, which is proved to be the ſame as Sprungli's ſpecimen.

While the moſt celebrated ornithologiſts have thus given to the bird different names, they have alſo in other inſtances confounded it with other birds, to which it has no other reſemblance than ſize, ſtrength, and voracity.

Thus Buffon erroneouſly conjectures the *vultur gryphus* of Linnæus, or the *condor* * of America, to be the ſame as the *lammer-geyer*, or vulture of the Alps; whereas the deſcription of the condor given by Linnæus, as well as by thoſe who had ſeen it, differs entirely from that of the bearded vulture. The condor is deſcribed by the Swede as having "the head deſtitute of feathers, but covered with a ſlight brown coloured down, with a comb reaching along the top of the head, and having the throat naked and of a reddiſh colour." Frezier, in his Voyage to the South Seas, alſo thus deſcribes the condor: "We one day killed a bird of prey called a condor, which was nine feet from the end of one wing to the end of the other, and had a brown comb or creſt, but not jagged like a cock's; the fore part of its throat is red without feathers, like a turkey, and they are generally large and ſtrong enough to take up a lamb. In order to get them from the flock, they draw themſelves into a circle and advance towards them with their wings extended, that being drove together and too cloſe, they may not be able to defend themſelves; then they pick them out and carry them off. Gracilaſſo ſays, "there are ſome in Peru ſixteen feet from the point of one wing to the other, and that a certain nation of Indians adored them."

Mr. Latham ſeems alſo to be no leſs miſtaken, when on the authority of the tranſlator of the Abbé Fortis's Travels into Calmatia, he conceives the *vultur percnopterus* of

* *Syn.* vol. i. p. 14.

† Mr. Latham, in his Supplement of the General Synopſis of Birds, p. 1. ſeems alſo to adopt the conjecture of Buffon, in claſſing the Lammer-geyer and Condor under the ſame ſpecies; though he confeſſes, "that it ſtill remains dubious, whether the Lammer-geyer be the ſame with the Condor, or a mere variety of the Bearded vulture." He adds alſo, with a candour which does him honour, "It is much to be feared, that other authors as well as myſelf, have greatly confounded the ſpecies of Vultures; for being like the falcon tribe, long-lived, their plumage puts on a great variety of dreſs, ſufficient to deceive thoſe who have hitherto attempted diſcriminate them."

Linnæus

Niefs
Blumlis-alp
Lauterbrunen
Briethorn
Mittaghorn
Ebeneflub
Gletscherhorn
Jungfrau-horn
Interior Eger
Exterior Eger
Viescherhorn
Finster Aar-horn
Schreckhorn
Wetterhorn

Linnæus to be the *vautour des Alpes* deſcribed by Conrad Geſner, and the ſame as Sprungli's ſpecimen; whereas, on the authority of Haſſelquiſt, who ſaw great numbers of the *percnopteri* in Egypt, the head of that bird is "naked and wrinkled;" and Ray ſays, the feet are naked; two characters that eſſentially diſtinguiſh it from the bearded vulture, in which the head is wholly covered with feathers, and alſo the feet down to the ends of the claws.

The bearded vulture not only inhabits thoſe alps which ſeparate Italy from Switzerland, but is alſo found in Corſica and Sardinia. De Hahn informed Sprungli, that he ſaw a bird in Corſica which was wounded in the wing, and was unqueſtionably of the ſame ſpecies as the ſtuffed ſpecimen: and Lettel, in his Natural Hiſtory of Sardinia, gives a figure and deſcription of the ſame bird, under the name of *bartgeyer*, or bearded vulture. It has alſo been found in the mountains of Africa; for Mr. Edwards received his ſpecimen from Santa Cruz in Barbary, and frequently on Caucaſus and the mountains of Dauria, or the ſouth-eaſtern part of Siberia, as we learn from the travels of both Pallas and Gmelin.

I was ſurpriſed not to find among the Swiſs birds in the catalogue, the *aigle Blanc*, or *aquila alba* of * Briſſon; the *falco Italicus* †, and the *falco montanus* of the ſame ‡; as particularly *zwitzer-falc*, the German name of the latter, ſeems neceſſarily to imply that it muſt be a Swiſs bird: Sprungli, however, aſſured me, that he never had been able to diſcover any of theſe ſpecies in the Alps; that probably the *aigle blanc*, if it exiſts, is a variety of the chryſaetos; and that both Briſſon and Willoughby do not cite Geſner for their deſcriptions of the *falco italicus*, but the authority of thoſe writers only who have never been in the Alps.

Of the crows it is worthy of obſervation, that the *corvus graculus* of Linnæus, or *coracias* of Briſſon, is faithfully repreſented by Pennant, in his Britiſh Zoology, under the denomination of the red-legged crow. It is the ſame bird of which Conrad Geſner § has given a figure, and to which he applies the German appellations, *taha*, *[illegible]tahen*, *ſteinkrae*, and which he juſtly ſuſpects to be the *cornix cornubiæ*, or red-legged crow. The *pyrrhocorax* of Geſner, which ſome ornithologiſts ſeem to have confounded with the *corvus graculous*, is, however, very different, and called by Linnæus *corvus pyrrhocorax*. Both theſe ſpecies inhabit the Alps, but the pyrrhocorax is the moſt common; and theſe appear, according to Sprungli's obſervations, to be the only ſpecies of the crow that prefer alpine ſituations. As to the *corvus cremita* of Linnæus, Sprungli acknowleges it is totally unknown to him. All the ornithologiſts indeed mention this bird as an inhabitant of the Alps, on the authority of Conrad Geſner, who deſcribes it under the name of *corvus ſylvaticus*, accompanied with a figure, which has not the leaſt reſemblance to a crow, but rather to a curlew; yet Geſner's deſcription of it is much too imperfect to aſſiſt us in aſcertaining the bird of which he treats.

LETTER LIX.—*M. Wittenbach's Collection.—Account of the Chain of Hills and Alps ſeen from the environs of Bern.*

THE Reverend Mr. Wyttenbach of Bern poſſeſſes a very curious cabinet, principally relating to the natural hiſtory of Switzerland, and of this canton in particular. It contains ſpecimens of ſeveral thouſand plants, among which is a large number of the alpine

* I. p. 424. † Ib. p. 336. ‡ Ib. p. 352. § *Hiſt. Av. ed. Frank.* p. 468.

plants of Switzerland; and he has already begun to arrange the capſules, ſeeds, and fruits.

It is ſtill more intereſting for the great variety of foſſils, ſtones, and petrifactions collected by himſelf in the neighbourhood of Bern, and from the upper and lower Alps. M. Wyttenbach alſo poſſeſſes various ſhells, inſects, and numerous drawings of the glaciers and upper alps. But I was moſt ſtruck with that part of his cabinet, comprehending thoſe objects of natural hiſtory, which in any degree influence agriculture, phyſic, arts, and trades, and which ſufficiently prove the utility of that ſcience in the progreſs and improvement of human comfort and knowledge. On this ſubject he has already publiſhed a diſſertation in the Acts of the Œconomical Society at Bern.

He has not formed this ample collection from mere motives of curioſity, or from deſultory views; but with a ſettled intention to illuſtrate the natural hiſtory of Switzerland in general, to form a typographical and mineralogical deſcription of this canton in particular and to elucidate the orignal formation of mountains which is the favourite object of his reſearches, and which his frequent viſits to the Alps will enable him to execute with fidelity and accuracy.

At my requeſt, this indefatigable obſerver favoured me with a plan and deſcription of that range of alps which is ſeen from Bern, and of the intervening diſtrict; an extract of which I ſubmit to your peruſal.

That part of the chain of Alps ſeen from Bern diſtinguiſhed by the different names of Wetterhorn, Schrekhorn, Eger, Jungfrauhorn, Lauter-Aar-Horn, Blumlis Alp, &c. is repreſented on the plan annexed to this letter. You will there obſerve this immenſe amphitheatre, gradually riſing from the environs of Bern, to elevated peaks, covered with eternal ſnow, and hitherto inacceſſible.

The plains and hills between Bern and Thun, are compoſed of rounded ſtones, and argillaceous ſtones called *molaſſes*, frequently ranged in alternate ſtrata. The *molaſſe* at Gurten, about two miles from Bern, contains, though rarely, gloſſopetræ; and the ſtrata of Belpberg, about ſeven or eight miles from the capital, are full of different ſpecies of chamites, oſtracites, globoſites, ſelenites, ſtrombites, and other ſimilar petrifactions.

The ridge of hills which borders the high road between Bern and Thun contains in ſeveral places, and particularly above Muſingen, an extenſive ſtrata of oſtracites, ſome pieces of which weigh more than fifteen pounds each. The ſituation of the ſtrata in theſe different hills, their direction, their nature, and the bodies which they encloſe ſeem to prove, that theſe hills formed anciently one great plain, which has been ſince hollowed and divided by the waters, particularly by thoſe of the Aar.

On the ſlopes and ſummits, which in ſome places are of conſiderable elevation are frequently found thoſe large maſſes of granite, that are uſed for the public works and buildings of Bern. Theſe maſſes ſo nearly reſemble the granite of the Grimſel, and of the mountains which compoſe the great central chain of the alps, as to render it probable, that in the ancient revolutions of the globe, they have been brought by the waters to the places where they are at preſent found, before the deep vallies, which now ſeparate them from their original mountains, exiſted. The ſame remark may be as juſtly applied to the blocks of marble and other calcareous ſtones, which though now removed to a conſiderable diſtance from their native ſituation, are alſo diſcovered in large quantities upon the hills adjacent to Bern, and likewiſe ſerve for the buildings of that capital.

As we approach the town and lake of Thun, the view opens, and diſcovers, towards the ſouth-eaſt, that high calcareous chain, of which the Stockhorn, the Neuneren, and the

the Ganteriſh have been illuſtrated by the botanical labours of the celebrated Haller. This chain which joins that of Schwartzenburg towards the canton of Friburgh, is chiefly calcareous, and contains fewer petrifactions than the above-mentioned hills; it is not of ſufficient elevation to be covered with ſnow in ſummer.

The Nieſs, which is the laſt mountain in this calcareous chain, ſtands on the borders of the lake, and ſeparates the valley of Frutingen from that of Simme; it is peculiarly intereſting to travellers, on account of the fine view from its ſummit; and to naturaliſts, becauſe it joins to the alps. Towards its foot beds of ſlate have been diſcovered, higher up it is of calcareous ſtone, and near its top is found a ſpecies of pudding-ſtone, filled with ſmall fragments of petrifactions.

In traverſing the lake of Thun the borders, which are planted with vines, are compoſed of rounded ſtones, united by a calcareous cement, as far as the mountains of St. Beat. There, near Rallingen, the rocks are calcareous and rugged, containing in a few places broken petrifactions, of which it is often difficult to aſcertain the ſpecies. On continuing my route at the foot of the St. Beat, I obſerved the firſt rocks that are abſolutely perpendicular, and even impending, and which are marked at different elevations with furrows, occaſioned by the waters of the lake that, in former periods, was probably ſeveral hundred feet above its preſent level. I remarked the ſame furrows nearly at the ſame elevations, in the vallies of Lauterbrunnen and Haſli, which coincidence ſeems to prove, that the lake of Thun once extended over all theſe parts, covered the whole plain of Bern, and reached as high as the Lengenberg, where Gruner diſcovered thoſe petrifactions called Pholades.

Having traverſed the lake of Thun, I entered the narrow but agreeable valley of Unterſeven and Interlachen, on each ſide of which the mountains approach each other, and form, if I may ſo expreſs myſelf, the *veſtibule* of the alps. The valley ſeparating the lakes of Thun and Brientz, which appear to have been once united, is entirely formed by ſtones brought by torrents from the alps. On the right is Abendberg, covered with trees and herbage, and ſtretching towards a group of mountains of conſiderable extent, yet little known, though their tops may be ſeen at Bern.

The Ballenhoechſt, Sulek, Schnabelhorn, Schwartzberg, Schwalmern, Schildhorn, Kirchfluh, Latreyenfirſt, and Dreyſpitz, are the moſt remarkable mountains in this group, which on one ſide borders the valley of Lauterbrunnen, and on the other towers oppoſite to the Nieſs, at the commencement of the valley of Frutingen. It is united by means of the Sefinen alps with the Dents Rouges, and the great central chain of granitical mountains. The mountains of this group ſtand on a baſe of argillaceous ſchiſtus, containing a few petrifactions, which is rarely viſible but at certain elevations. Towards Lauterbrunnen particularly a fine-grained calcareous ſtone abounds.

To return to the valley of Unterſeven. On the left is another group of calcareous mountains, extending along the lake of Brientz towards Haſli, and ſtanding alſo on an argillaceous ſchiſtus, which is but rarely viſible. And though the granitical chain is at a very ſmall diſtance, it is, however, ſo entirely concealed by theſe ſecondary mountains, as to be nowhere diſcovered, except between Unterſeven and Interlachen, where the Jungfrau preſents herſelf in all her majeſty.

From theſe delightful plains I attempted to penetrate towards the granitical chain of alps through narrow vallies encloſed between perpendicular rocks of an enormous height; but every where I met with ſecondary mountains, which, to a conſiderable elevation, conceal the primitive bed of granite, and render the approach to it extremely dangerous, if not impracticable. Thus the valley of Lauterbrunnen is bordered by calcareous rocks even to its farther extremity. At Sichellauenen the firſt maſſes of

granite appear, forming the baſe of the calcareous rocks, which are of a very great height. Continuing my route towards the chain, which ſtretches from the Jungfrau to the Groſshorn and Breithorn, I obſerved a rock of ſteatite, in which ſome veins of lead have been diſcovered and worked at Hohalp. Higher up is the true granitical chain, which, however, even there is frequently covered with calcareous peaks.

I found the approach to this chain leſs difficult at Wengenalp, the laſt of a group of calcareous and ſchiſtous mountains between Lauterbrunnen and Grindelwald, which there joins the Jungfrau, the ſummits whereof appear to be granite. In the valley of Grindelwald I obſerved only the argillaceous ſchiſtus and calcareous ſtone; the external parts of the Eger, of the Mettenberg, and of the Wetterhorn, are chiefly calcareous, and cover the granite of the central chain, and the only pieces of granite are the fragments brought into the valley by the two glaciers. That chain, which is oppoſite to theſe glaciers, and borders the northern ſide of the valley of Grindelwald, has an argillaceous baſe, which, in ſeveral places, particularly towards Haſli, contains cornua ammones, and is covered with calcareous rocks, through which it often penetrates at different heights.

I will now take a nearer view of the primitive chain, and trace the alps in the ſame order as they are marked upon the annexed plan. I ſhall conſider the Jungfrau as the centre, from which I will take my departure on one ſide towards the Gemmi, and on the other towards the Schrekhorn, Wetterhorn, and Grimſel.

The Jungfrau, or Virgin, is one of the higheſt and moſt beautiful mountains in the canton of Bern. The granite does not appear till a very conſiderable elevation; its foot being in moſt parts covered by rocks, which are of calcareous ſtone, called by the natives *Staldenfluh*, of which an elevated peak is denominated the Monk. On following theſe rocks to Sichellauinen, about two leagues from Lauterbrunnen, I obſerved a red ſtratum, that ſeems to form the ſeparation between the granite and the calcareous ſubſtance; it is compoſed of an argillaceous ſlate, ſpotted with brown and green, and of a fine grained iron ore (as I was ſurpriſed to find) containing anomites. I obſerved the ſame ſtratum at the bottom of the Eger and Wetterhorn, and of ſeveral mountains towards Haſli; I remarked it at different heights; but as all acceſs to them has been hitherto found impracticable, I cannot attempt to explain a phænomenon which merits a nearer inveſtigation.

The chain of the Jungfrau ſtretches to the right by thoſe inacceſſible peaks called the Gletſcherhorn, Ebenfluh, Mittaghorn, Groſshorn, Breithorn. I am entirely unacquainted with their ſtructure, except from the fragments, which I have obſerved at their feet, or on the maſſes of ice deſcending from their tops. Limeſtone occurs at very conſiderable heights; particularly white marble, and a fine grey marble, which is the matrix of a red hematite filled with innumerable ſmall cryſtals of iron of an octagon figure, and attractable by the magnet. Beſides theſe ſtones I noticed on the glaciers of Breitlauinen and Breithorn, various ſpecies of granite, both foliated and in blocks, of iron-ſtone, of *ſaxum fornacum*, or *ſtelſtein*, and of argillaceous and micaceous ſchiſtus. All theſe fragments ſufficiently prove that granite prevails in the higher parts, although it is frequently covered with ſecondary mountains.

To the right is the majeſtic Blumlis alp, which is a fine object from the plains; a large glacier mentioned by no author ſtretches at its feet. I firſt noticed it from the oppoſite heights of Oeſchenengrat, and at the ſame time obſerved, that the feet of the Alpſchelenhorn and Blumlis alp are covered with black ſchiſtus, and that the granite is not apparent, but at a conſiderable height.

A few days after this expedition, I mounted to the ſummit of the glacier, called by the peaſants Gamchigletcher, where it forms a very ſteep ridge towards the valley of Lauterbrunnen. From thence I beheld the vaſt amphitheatre of the Lauterbrunnen glaciers; I remarked alſo, that the valley of Lauterbrunnen ends at this place; that it has only one iſſue behind Blumlis alp, where a large glacier, with a plain and unbroken ſurface, ſtretches towards the valley of Gaſter. Here then is the extremity of the valley of Lauterbrunnen, which expands at the feet of the Eger and the Jungfrau, continues almoſt in a ſtraight line as far as Sichellauinen to the foot of the Gletcherhorn and of the glacier of Stuffiſtein, where it forms an angle, and bends towards Blumlis alp.

The ridge of the glacier of Gamchi is of a black calcareous ſtone, which, in many places, is of a fine texture, and ſplits into lamina of a rhomboidal form; in other parts it is coarſely granulated, containing white and black ſpar. The ſides of the Blumlis alp bordering the glacier are black ſlate, in which I found ſeveral balemnites, and a fragment of a cornu ammonis, a foot in diameter. The pieces of granite which are diſcovered upon the glacier, and which moſt probably fell from the ſummits of the Blumlis alp and of the Dents Rouges, is very ſimilar to that granite, containing veins of lead, near Sichellauinen in the valley of Lauterbrunnen.

The granitical chain which extends on the right by the Alpſchelenhorn and the Altits, is entirely concealed and loſt in Mount Gemmi, where only calcareous ſtone and ſlate are diſcovered. As I have not yet had any opportunity to examine the mountains of Simmenthol and of Geſſenay, I cannot inform you, if the granite appears through their calcareous covering.

But let us return to the Jungfrau, and trace the mountains towards Grindelwal and the Grimſel. The two high pyramids which tower near the Jungfrau are the two Egers, called from their poſition Exterior and Interior. Calcareous ſtone is viſible to a great height; many perſons indeed pretend, that the whole ſide of the Exterior Eger towards Grindelwald is entirely calcareous; but I am convinced, from repeated obſervations, that the ſubſtance of theſe mountains is granite, though it is covered with calcareous ſtone lying on reddiſh ſlate, which in many places forms a ſpecies of breſcia, compoſed of an argillaceous baſe, covered with calcareous fragments. You obſerve behind the Exterior Eger two ſmall peaks which ſeem united by a ridge; theſe are the Vieſcherhorn and the Zeſenberg, which overlook the inferior glacier of Grindelwald. The ſtones that have fallen on the glacier ſhew, that their ſummits, as well as that of the Schreckhorn, are of granite in blocks, veined granite, and other lamellated rocks, which frequently contain great ſteatites, amianthus, and chryſtals of quartz.

The high peak which appears to ſtand near the Zeſenberg is at a very conſiderable diſtance, and probably ſeparated from it by large vallies of ice. This peak, which has hitherto eſcaped the mention of travellers, ſeems to be the Finſter-Aar-horn, and can only be approached from the Grimſel, or by traverſing the glacier of the Aar. I have ſeen it from the ſummits of the St. Gothard, from one of the heights which ſeparate the valley of Grindelwald from the lake of Brientz; I have been at its foot upon the glacier of the Finſter-Aar; on all ſides, and in all places, its elevation is ſtupendous, and appears to me to exceed even that of the Schreckhorn, which has been hitherto conſidered as the higheſt *.

The

* This conjecture of M. Wittenbach is confirmed by actual meaſurement taken geometrically by Tralles.

Height of the principal Alps in the canton of Bern:

	Engliſh Feet.		Engliſh Feet.
Finſterarhorn -	14,116	Mouch -	13,510
Jangfrauhorn -	13,730	Schreckhorn	13,397

Eiger

The Schreckhorn, or peak of terror, riſes between the two glaciers of Grindelwald. Concealed by its baſe, the Mettenberg, it is not ſeen from the valley of Grindelwald, and the rugged paths which lead acroſs the ſuperior glacier to its foot are extremely difficult and dangerous; part of it is obſerved from that glacier. The tops of the Mettenberg are of granite, and the lower parts of lamellated rock, blended with mica and quartz. The piked ſummits of the Schreckhorn, which riſe to an enormous height, appear to be of pure granite and other primitive ſtones.

The next in this chain is the Wetterhorn, or Stormy Peak, whoſe perpendicular ſides border the ſuperior glacier. The exterior part of this mountain is of calcareous ſtone to a very conſiderable elevation, but the ſummits are undoubtedly of primitive rock. I noticed along the ſides the ſame red ſtratum, which makes its appearance on the Eger and at the foot of the Jungfrau. Behind the Wetterhorn is ſeen an elevated rock, which is ſaid by the inhabitants of Grindelwald to border the glacier of the Lauteraar, and which from thence has been aſcended by ſeveral *chaſſeurs*.

Examining the ſtones brought down by the ſuperior glacier, I did not diſcover much granite in maſs, but often veined granite, and lamellated rock, which frequently encloſe pieces of the corneus ſpathoſus mixed with ſteatites, pyrites, and quartz. The foot of the Wetterhorn and that of the Mettenberg contains, in ſeveral places, a fine ſpecies of white marble, with red, green, and yellow veins; a quarry of which, now covered by the inferior glacier, was formerly worked.

In paſſing from Grindelwald to Meyringen I traverſed the Scheidek, which ſtands on the foot of the Wetterhorn, and entirely conſiſts of black ſlate; this ſlate continues to compoſe the chain that divides Grindelwald from the plains of Haſli and the lake of Brientz.

Deſcending the Scheidek I obſerved, on my right hand, the chain that joins the Wetterhorn and runs towards the Grimſel. As I have not particularly examined this chain, I ſhall only remark in general, that from an inveſtigation of the ſtones and fragments which ſtrew the vallies and ſides of the hills, it appears to contain the ſame ſpecies of marble which I found on the ſuperior glacier of Grindelwald, alſo red ſlate, argillaceous breſcia, and various granites. But this much is certain, that the front of theſe mountains is entirely concealed by ſecondary ſubſtances, and that the true region of granite was not apparent, until I had paſſed Meyringen and aſcended the Grimſel, during the greater part of which aſcent I only noticed lamellated rocks and granite. All the mountains which form the Grimſel and the neighbouring chain are concealed in my plan by the Wetterhorn; they extend behind the Schreckhorn as far as the Finſter-aar-horn. This is the true region of granite and other primitive rocks, the heart of the central chain, and the great obſervatory of the naturaliſt.

	Engliſh Feet.		Engliſh Feet.
Eiger - -	13,086	Nieſen -	7,829
Wetterhorn -	12,217	Morgenberghorn	7,456
All Els - -	12,194	Hohgant	7,290
Frau - -	12,153	Stockhorn -	7,218
Doldenhorn - -	12,039		

LETTER

LETTER LX. — *Excurſion to Thun, Worbe, and Hindelbank.—Tomb of Madame Langhans.*

THE environs of Bern are in general extremely delightful, and no road exhibits a more pleaſing variety of hill and dale than that which leads to Thun. It runs through an agreeable country, winds through fertile meadows, enriched with dark foreſts of pine and fir, and occaſional groves of beech and oak; the cattle, lately deſcended from the Alps, were browzing on the paſtures, and added to the animation of the ſcenery. The well-being of the inhabitants is viſible from the cultivation of the grounds, and from the number and neatneſs of the cottages and farm-houſes which are ſcattered about the fields, ſkirted by trees, or half concealed amid tufts of wood.

Thun is diſtant about twelve miles from Bern *; it occupies the bottom and brow of a hill, and ſtretches on both ſides of the Aar; it contains twelve hundred ſouls, enjoys conſiderable immunities, has its own magiſtrates and courts of juſtice, in which the bailif from Bern always preſides, and from whoſe deciſion an appeal lies to the capital. The inhabitants employ themſelves in carding and ſpinning ſilk for the manufactures of Baſle; ſome of the burghers poſſeſs large herds of cattle.

To the north eaſt ſtand, on an eminence, the church, and the caſtle, which is the reſidence of the bailif, and occupies the higheſt point. From its windows I enjoyed a moſt pleaſing and extenſive view, not inferior in its kind to any proſpect in Switzerland. Underneath is the town, occupying both ſides of the Aar, ſtanding in a rich plain of paſture, and bounded by a chain of hills, black with foreſts of fir, which extend from Bern and join the Nieſs, a brown and rugged mountain, that riſes rapidly from the edge of the lake. To the eaſt a ſmall ridge covered with vines and trees; and to the ſouth-eaſt part of the lake of Thun, bounded by hills riſing to the mountains and alps of Lauterbrunnen and Grindelwald, "*piled up to the clouds.*"

The Aar flows from the lake between two level promontories prettily ſprinkled with trees, on one of which ſtands the caſtle of Schadan. The lower parts of this view contraſted with the rugged rocks and mountains, reſemble a painting of Claude by the ſide of a Salvator Roſa.

From Thun I returned about ſix miles to the village of Maſſic, where I quitted the high road, and paſſed through pleaſant thickets of beech and oak, over fields and incloſures; the cottages and hamlets agreeably ſituated in lawns and amid clumps of trees. In about an hour and a half I entered the road which leads from Bern to Langenau, and aſcending to the upper part of the village of Worbe, paſſed an agreeable day with an amiable family, who favoured me with a moſt cordial and polite reception. The view from their houſe, which ſtands in the midſt of a field, is not inferior to that from the caſtle of Thun; it commands a rich incloſed and well-wooded country, gently broken into hill and dale, and watered by many lively ſtreams; the huge white peaks of the Jungfrauhorn, Schreckhorn, and Wetterhorn, overtopping a hill embrowned with firs.

I made alſo an excurſion to Hindelbank, a village about four miles from Bern, in order to examine the tomb of Madame Langhans, a moſt celebrated work of Nahl, a Saxon ſculptor. Being employed in conſtructing a ſepulchre for Count d'Erlach, he was lodged in the houſe of the clergyman, his particular friend, whoſe wife, a woman

* Muſingen, midway between Bern and Thun, is rendered memorable in the unhappy fate of this country, by the aſſaſſination of General d'Erlach, commander of the Berneſe army, and Lord of Hindelbank. See the Introduction.

of uncommon beauty, expired in child-bed on Eaſter-eve. Struck with the time of her death, animated by the recollection of her beauty, ſympathiſing with the affliction of her huſband, he conceived and finiſhed this affecting monument. It is placed in the body of the church, ſunk into the pavement like a grave, and covered with two folding-doors. When theſe are opened a grave-ſtone appears as if juſt rent into three fractures, through which is half-diſcovered the figure of a woman ſlightly veiled with a ſhroud. She is repreſented at the moment of the reſurrection, when "*the graves are commanded to yield up the dead;*" her right hand is gently raiſing that portion of the broken ſtone which lies over her head; and the other holds a naked infant ſtruggling with its little hands to releaſe itſelf from the tomb. "*Here am I, Lord, and the child whom thou gaveſt me* *," are the ſublime words which form the inſcription. Below is the name of the deceaſed, "Anna Magdalena Langhans, wife of the clergyman. Born 1723; died 1751." The workmanſhip is by no means inferior to the original deſign; the artiſt has formed the whole ſepulchre out of one block, and ſo naturally expreſſed the ſwelling of the ſtone, that the fragments ſeem as if they had juſt burſt, and were in the act of opening. The only circumſtance to be regretted is, that the materials are not ſo durable as ſuch a monument deſerves; being of ſand ſtone, they are too ſoft to reſiſt the effects of time, and even now exhibit ſome ſymptoms of decay.

Nothing perhaps can more ſtrongly diſplay the ſuperior effect of ſimplicity over magnificence, than the compariſon of this tomb with the mauſoleum of Count d'Erlach in the ſame church. The mauſoleum conſiſting of ſeveral marble figures, executed in a maſterly ſtyle, and loaded with all the emblems of rank and opulence, ſcarcely attracts a momentary attention; while this ſimple grave ſtone "*ſpeaks home*" to every heart of taſte and feeling.

LETTER LXI.—*Viſit to Michael Schuppach, the Phyſician of Langenau.*

Langenau, Sept. 18.

YOU have heard perhaps of Michael Schuppach, the famous Swiſs doctor; of whoſe ſagacity in diſcovering the ſeat of diſorders, and applying ſuitable remedies, many wonderful ſtories are recounted; and which, like Virgil's Progreſs of Fame, have increaſed in the marvellous in proportion as they receded from the ſcene of action. I am now lodged in the houſe of this celebrated Æſculapius: it is ſituated above the village of Langenau, on the ſide of a ſteep acclivity; from which circumſtance he is generally ſtyled *the phyſician of the mountain.*

On our arrival we found the Doctor in his apartment, ſurrounded by ſeveral peaſants, who were conſulting him; each having brought with him a ſmall bottle, containing ſome of his water; for, by inſpecting the urine, this medical ſage pretends to judge of the patient's caſe. His figure is extremely corpulent; he has a penetrating eye, and a good-humoured countenance. He ſeats himſelf oppoſite to the perſon who conſults him, one moment looks at the water, the next at the patient; and continues examining alternately the one and the other, whiſtling occaſionally during the intervals. He then opens the ſtate of the caſe, acquaints the conſultant with the nature of his complaints, and has ſometimes the good fortune to hit upon the true cauſe. In a word, his knack of diſcovering diſorders by urine, has gained ſuch implicit faith in his ſkill, that we might as well queſtion the Pope's infallibility to a zealous catholic, as the Doctor's in the pre-

* *Hier Herr bin ich; und das kind, ſo du mir gegeben haſt.* An engraving of this monument is publiſhed by M. de Mechel of Baſle.

ſence

ſence of his patients. He has certainly performed ſeveral great cures, and the rumour of them hath brought perſons from all quarters of Europe for his advice.

The Doctor was formerly a village ſurgeon, has a ſlight knowledge of anatomy, and is tolerably verſed in botany and chemiſtry. His acquaintance with the theory of phyſic is ſaid to be limited; the greater part of his knowledge being derived from his extenſive practice, though he never ſtirs a quarter of a mile from his own houſe; for he would not take the trouble of going to Bern, even to attend the King of France.

It is more than probable, that much of this extraordinary man's ſucceſs is owing to the benefit which his patients receive from change of climate, to the ſalubrious air of this place, and to the amuſement ariſing from the conſtant ſucceſſion of company. But whatever may have been the cauſes of his celebrity, it has come to him, as all accounts agree, unſought by himſelf. He has certainly many excellent qualities; is humane and charitable to the higheſt degree, not only furniſhes the indigent peaſants who conſult him with medicines gratis, but generally makes them a preſent in money beſides, and always appropriates a certain portion of his gains to the poor of his pariſh. His wife and grand-daughters are dreſſed like the peaſant women of the country, and he has ſhewn his good ſenſe in giving the latter a plain education; the eldeſt he beſtowed in marriage, when ſhe was but fifteen, upon one of his aſſiſtants, and with her £1300; no inconſiderable portion for this country. He procured a match for her ſo early he ſaid, to prevent her being ſpoiled by the young gentlemen telling her that ſhe was pretty, and inſpiring her with the ambition of marrying above her rank.

If domeſtic harmony, and the moſt perfect ſimplicity of manners, have any pretenſions to pleaſe, you would be highly delighted with this rural family. The wife is a notable active woman, and ſuperintends the houſehold affairs with remarkable cleverneſs; ſhe aſſiſts her huſband likewiſe in preparing his medicines, and, as he talks no other language than the German, ſhe ſerves occaſionally as his interpreter. As a proof of his confidence in her adminiſtration of his affairs, ſhe acts as his treaſurer, and receives all his fees, which in the courſe of a year amount to a conſiderable ſum; for, although he never demands more than the price of his medicines, yet no gentleman conſults him without giving an additional gratuity. She has likewiſe received many preſents from thoſe who have reaped benefit by her huſband's preſcriptions; ſeveral of theſe preſents conſiſt of valuable trinkets, with which on days of ceremony ſhe decks herſelf to the beſt advantage, in the ſimple dreſs of the country.

The family ſit down to table regularly at twelve o'clock; there are always ſome ſtrangers of the party, conſiſting not only of thoſe perſons who are under the Doctor's care, but of travellers, like ourſelves, led by motives of mere curioſity. When the weather is fine, and their gueſts more numerous than uſual, dinner is ſerved in an open ſhed that overlooks the adjacent country, with a diſtant view of the glaciers beyond the lake of Thun. Yeſterday ſome peaſants whom the Doctor invited formed part of our company; after dinner he gave ſome money to thoſe that ſat near him, and ordered one of his grand-daughters to diſtribute his bounty to the others. The benevolence of the old man, his gaiety and good-humour, the cheerfulneſs of his family, the gratitude of the poor peaſants, the beauty of the proſpect, and the fineneſs of the weather formed altogether a moſt agreeable and delightful ſcene; and I do not remember to have ever partaken of any meal with a more ſenſible and heartfelt ſatisfaction.

This ſingular man is very often employed in giving advice from eight in the morning till ſix in the evening, with no other intermiſſion than during the time he is at table. His drugs are of the beſt kind, for he collects the ſimples, and diſtils them himſelf; his houſe, like thoſe of the peaſants, is conſtructed of wood; and, though always full

of people, is remarkably neat and clean; in ſhort, every thing about him bears the appearance of the pleaſing ſimplicity of former ages.

I had almoſt forgotten to tell you that I conſulted him this morning; and have reaſon to be highly ſatisfied with his preſcription: for he told me I was in ſuch good health, that the only advice he had to give me, was "to eat and drink well, to dance, be merry, and take moderate exerciſe."

It is now Langenau fair, and the village is crowded with the neighbouring peaſants. Great numbers of the men have long beards, and many of them cover their heads with a woman's ſtraw hat, extremely broad, which makes a groteſque appearance; their dreſs is chiefly a coarſe brown cloth jacket without ſleeves, with large puffed breeches of ticking. The women, who are remarkably handſome, wear their hair plaited behind in treſſes, with the ribband hanging down below the waiſt; a flat plain ſtraw hat, which is very becoming; a red or brown cloth jacket without ſleeves; a black or blue petticoat bordered with red, and ſcarcely reaching below the knees, red ſtockings with black clocks, and no heels to their ſhoes; their ſhifts of extremely fine linen, faſtened cloſe round the neck by a black collar with red ornaments; the better ſort have chains of ſilver between the ſhoulders, brought round under each arm, and faſtened beneath the boſom, the ends hanging down with ſilver ornaments.

I am ſo charmed with the ſituation of this village, the cheerfulneſs and ſingularity of this ruſtic and agreeable family, and the uncommon character of the humane Doctor, that I could with pleaſure continue here ſome days; but I am preſſed for time, and have a long journey before me.

THIS celebrated empiric died in March 1781; and Langenau, which I again viſited in Auguſt 1786, was no longer the reſort of the ſick, the valetudinarian, the curious, and the idle. The Doctor gained by his practice £10,000; of which ſum his wife received a third, and the remainder was diſtributed among his ſon-in-law and grandchildren.

Langenau is ſituated at the commencement of the Emmethal, a valley remarkable for its cultivation and beauty. Many of the farmers are extremely rich; the people appear in general contented and happy; the wooden cottages ſcattered about the fields, are uncommonly neat and comfortable, and announce, in their appearance, the happy condition of the peaſantry.

LETTER LXII.—*Payerne.—Moudon.—Geneva.—Calvin.*

Geneva, Sept. 6.

I TOOK leave of my friends at Langenau, in order to proceed to Avignon; where I am going to pay a viſit to the *Abbé de Sade*, author of the intereſting memoirs of the life of Petrarch. Monſieur de Vigur, a ſenator of Soleure, offered me a place in his carriage to Bern, as my principal object in travelling is to acquire intelligence, I gladly embraced this opportunity of leading my worthy and well-informed companion into a converſation, not only concerning the government of Soleure in particular, but in relation alſo to Switzerland in general, and I found him exceedingly well-diſpoſed to anſwer the ſeveral queſtions he allowed me to propoſe.

The next day I repaſſed through Morat and Avenches, and ſlept at Payerne, a town in the canton of Bern, which enjoys conſiderable privileges. Upon the bridge over the Broye is an ancient Roman inſcription.

Moudon is a handſome town, the principal burgh of the bailliage, and formerly the capital of all that part of the Pays de Vaud, which belonged to the Duke of Savoy. It was the ordinary reſidence of his chief bailif, and the place where the ſtates were accuſtomed to meet. The bailif appointed by the ſovereign council of Bern reſides in the caſtle of Lucens, built upon the ſummit of a mountain, in a ſituation exceedingly picturesque; it formerly belonged to the Biſhops of Lauſanne, and was one of their favourite ſeats, before the reformation was introduced into this country.

Geneva lies upon the narroweſt part of the lake, where the Rhone iſſues in two large and rapid ſtreams, which ſoon afterwards unite. That river ſeparates the city into two unequal diviſions, receives the muddy Arve in its courſe, and flows through France into the Mediterranean. The adjacent country is uncommonly picturesque, and abounds in magnificent views: the ſeveral objects which compoſe this enchanting proſpect are the town, the lake, the numerous hills and mountains, particularly the Saleve and the Mole, riſing ſuddenly from the plain in a variety of fantaſtic forms, backed by the glaciers of Savoy, with their frozen tops gliſtening in the ſun, and the majeſtic Mont Blanc rearing its head far above the reſt.

Geneva, which ſtands partly in the plain upon the borders of the lake, and partly upon a gentle aſcent, is irregularly built; the houſes are high, and many in the trading part of the city have arcades of wood, which are raiſed even to the upper ſtories. Theſe arcades, ſupported by pillars, give a gloomy appearance to the ſtreet; but are uſeful to the inhabitants in protecting them from the ſun and rain. It is by far the moſt populous town in Switzerland, and contains 24,000 ſouls. This ſuperiority of numbers is undoubtedly owing to the great induſtry and activity of the inhabitants, to its extenſive commerce, to the facility of purchaſing the burgherſhip, and to the privileges which government allows to all foreigners. The members of this city are diſtinguiſhed into citizens and burgeſſes, inhabitants and natives *. The citizens and burgeſſes are alone admitted to a ſhare in the government; the inhabitants are ſtrangers allowed to ſettle in the town with certain privileges, and the natives are the ſons of thoſe inhabitants, who poſſeſs additional advantages; the two laſt claſſes form a large majority of the people.

The liberal policy of this government in receiving ſtrangers and conferring the burgherſhip is more remarbakble, as it is contrary to the ſpirit and uſage of the Swiſs. It is here indeed more neceſſary, the territory of this ſtate being ſo exceedingly ſmall, that its very exiſtence depends upon the number and induſtry of the people; for, excluſive of the city, there are ſcarcely 16,000 ſouls in the whole diſtrict of the Genevois.

The reformed doctrines firſt preached at Geneva in 1533 by William Farel, a native of Gap in Dauphiné, and Peter Viret of Orbe, owed their final eſtabliſhment to John Calvin, who was born at Noyon in 1509, and being driven from France by the perſecutions which Francis the Firſt raiſed againſt the proteſtants, made his firſt appearance in this city in 1536.

Zuingle, Œcolampadius, and Haller had reformed the greater part of Switzerland ſome years before that period; but Calvin has given his name to the ſectaries of the reformed religion, in the ſame manner as the new continent took its appellation from Americus Veſpucius, notwithſtanding the original diſcovery was made by Columbus. Although Calvin was not the firſt reformer of Geneva, yet, as he gave ſtrength and ſolidity to the new eſtabliſhment, and founded the eccleſiaſtical form of government, he

* Since the late revolution in 1782, there is a fifth claſs, called *domiciliés*, who receive from the magiſtrates an annual permiſſion to remain in the city.

totally eclipſed the fame of his friend William Farel, who ſcattered the firſt ſeeds of reformation. In truth, ſo great was the aſcendency which Calvin, although a foreigner, acquired over the citizens, that he poſſeſſed conſiderable influence even in civil matters, and bore a large ſhare in ſettling the political conſtitution. Conſcious that religion derives ſupport from every branch of knowledge, he liberally promoted the cultivation of ſcience, and the ſtudy of elegant literature. To this end, as well as to encourage theological erudition, he prevailed upon government to eſtabliſh a public academy; but with ſingular diſintereſtedneſs declining the offer of being perpetual preſident, he obtained that office for his friend and fellow-labourer Theodore Beza. In this new ſeminary Calvin, with Theodore Beza, and his other colleagues, eminent for their ſuperior knowledge, read lectures, with ſuch uncommmon reputation and ſucceſs, as attracted ſtudents from all quarters.

There is ſuch a ſtriking ſplendor in the brighter parts of this celebrated reformer's character as to render us, at firſt glance, almoſt inſenſible to thoſe dark ſpots which in ſome inſtances obſcure its glory. But when we reflect on his aſperity and arrogance, and, above all, on the cruel perſecution of Servetus, we cannot but lament that he did not riſe ſuperior to the intolerant principles of the age, which, in all other inſtances, he helped to enlighten. With regard to his intolerant principles, it muſt be acknowledged, that the ſame uncharitable ſpirit prevailed alſo among many of the moſt celebrated reformers, who unaccountably conceived, in oppoſition not only to the genius but to the cleareſt precepts of the goſpel, that perſecution for conſcience' ſake, although unchriſtian in every other eccleſiaſtical eſtabliſhment, was juſtifiable in their own.

The republic of Geneva is at preſent the moſt tolerating of all the reformed ſtates in in Switzerland; being the only government in this country which permits the public exerciſe of the Lutheran religion. In this reſpect the clergy, no leſs wiſely than ſuitably to the ſpirit as well as the letter of the Chriſtian revelation, have renounced the principles of their great patriarch Calvin, although they ſtill hold that able reformer in high veneration; yet they know how to diſtinguiſh his virtues from his defects, and to admire the one without being blindly partial to the other. I am, &c.

LETTER LXIII.—*On the Literature of Geneva.*

TO a man of letters Geneva is particularly intereſting; learning is diveſted of pedantry, and philoſophy united with a knowledge of the world; the pleaſures of ſociety are mixed with the purſuits of literature, and elegance and urbanity give a zeſt to the profoundeſt diſquiſitions. Nor are letters confined in this city merely to thoſe who engage in them as a profeſſion, or to thoſe whoſe fortune and leiſure enable them to follow where genius leads. Even the lower claſs of people are exceedingly well informed, and there is perhaps no city in Europe where learning is more univerſally diffuſed. I received great ſatisfaction in converſing even with ſeveral tradeſmen upon topics both of literature and politics; and was aſtoniſhed to find in this claſs of men, ſo uncommon a ſhare of knowledge. But the wonder ceaſes, when we are told, that all of them were educated at the public academy, where the children of the citizens are taught, under the inſpection of the magiſtrates, and at the expence of government.

One circumſtance in this ſeminary particularly contributes to excite the induſtry and emulation of the ſtudents; prizes are annually diſtributed to thoſe who have diſtinguiſhed themſelves in each claſs. Theſe rewards, conſiſting of ſmall medals, are conferred with

ſuch ſolemnity as cannot fail of producing great effect. A yearly meeting of all the magiſtrates, profeſſors, and principal inhabitants, is held at the cathedral, when the firſt ſyndic himſelf diſtributes, in the moſt public manner, the honorary retributions. I met this morning one of the ſcholars, and, ſeeing his medal, inquired its meaning. "*Je la porte,*" replied the boy, ſcarcely eight years old, "*parce que j'ai fait mon devoir.*" I required no ſtronger proof to convince me of the beneficial influence upon young minds, from theſe encouraging and judicious diſtinctions, than appeared from this ſprightly ſpecimen. The citizens enjoy the advantage alſo of having free acceſs to the public library; and by this privilege not only retain but improve that general tincture of learning which they imbibe in their early youth.

The public library owes its origin to Bonnivard, prior of St. Victor, who was twice impriſoned for having aſſerted againſt the Dukes of Savoy the independence of Geneva, and who conſidered the hardſhips he had ſuffered, and the perils he had eſcaped, as ties that endeared him more ſtrongly to a city which he had adopted as his own. He was a principal promoter of the reformation by gentle means and gradual inſtruction. He cloſed his benefactions to his beloved city by the gift of his valuable manuſcripts and books, and by bequeathing his fortune towards the eſtabliſhment and ſupport of the ſeminary. His works, which chiefly relate to the hiſtory of Geneva, are preſerved with that care and reverence due to ſo eminent a benefactor.

The library contains twenty-five thouſand volumes, and many curious manuſcripts, of which an accurate and learned catalogue has been lately publiſhed by the Reverend M. Sennebier the librarian. He has attempted to determine the ages of the ſeveral manuſcripts; he deſcribes their form and ſize, the materials on which they are written, the ornaments, the characteriſtic phraſes, and mentions the proofs on which he grounds his opinions; he adds the notes, and diſtinguiſhes thoſe which have never been printed. Sennebier has alſo favoured the world with "*Hiſtoire Litteraire de Geneve,*" accompanied with biographical anecdotes of thoſe natives who have been celebrated for their learning. As I ſhould treſpaſs too much on your time if I were to attempt ſending you an account of the principal men of letters in Geneva, I ſhall confine myſelf to thoſe only with whom I am perſonally acquainted.

Charles Bonnet was born in 1720. His life has been devoted to the purſuits of literature, and to the improvement of philoſophy and ſcience. He has proved by his publications, that his indefatigable induſtry in ſearching into the phenomena of the creation is equalled only by his ingenuity in explaining them. His works, printed at Neuchatel, form nine volumes in quarto, or eighteen in octavo, and contain divers ſubjects of natural hiſtory, many accurate obſervations on inſects, on the vegetation of plants, conſiderations on organiſed bodies, and the contemplations of nature. By ſeveral treatiſes, and particularly his Analytical Eſſay on the Faculties of the Soul, he has ſhewn himſelf an acute metaphyſician. Like his friend Haller, he has alſo ſtood forth an able advocate for the great principles of natural and revealed religion. His * Philoſophical Reſearches on Chriſtianity, and his treatiſe on the Exiſtence of God, prove, that an intimate knowledge of nature neceſſarily tends to eſtabliſh a rational belief of thoſe great truths. I had frequent opportunities of converſing with this reſpectable philoſopher; though now in the ſixty-ſixth year of his age, he poſſeſſes an uncommon degree of vivacity and animation, ſtill retains his enthuſiaſm for the purſuits of ſcience, and ſpeaks with the ſame perſpicuity and elegance as are obſervable in his writings †.

* A tranſlation of his *Recherches Philoſophiques ſur les Preuves du Chriſtianiſme* has been given to the public by John Lewis Boiſſier, Eſq under the title of "Philoſophical and Critical Inquiries concerning Chriſtianity." † Bonnet died ſince the publication of the laſt edition.

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I was no leſs ambitious of being known to his nephew de Sauſſure. Born in 1740, he was elected profeſſor of philoſophy in 1762, and has given to the public numerous ſpecimens of his indefatigable induſtry, and of the verſatility of his talents: he has made various remarks and experiments on microſcopic animals, obſervations on electricity, on baſaltic lavas and volcanic productions, on the phyſical geography of Italy. He has invented an inſtrument for meaſuring the degrees of magnetic force, and ſo much improved the electrometer of Gavallo, that it may be almoſt conſidered as a new inſtrument. But above all, his invention of the hairgrometer, for meaſuring the moiſture of the atmoſphere, has enabled him to make many theoretical and experimental reſearches that are detailed in *Eſſai ſur l'Hygrometre.* And although a controverſy ſubſiſts between him and de Luc, concerning the propriety of hair for this purpoſe, yet it cannot depreciate this invention, and new lights muſt be thrown on that ſubject by the oppoſition of two ſuch able naturaliſts.

His *Voyages dans les Alpes*, of which two * volumes in quarto have made their appearance, treat of the phyſical geography of the Alps, the formation of mountains, the origin of the glaciers, and various phenomena of nature, which peculiarly diſtinguiſh Switzerland. Unlike ſome philoſophers of the preſent age, who from their cabinet, and with no other knowledge of the earth than what is acquired by books, peremptorily and preſumptuouſly decide on the theory of the globe; this indefatigable obſerver draws from repeated excurſion and inceſſant experience a fund of facts, which may enable him to complete the great deſign and object of all his reſearches, that of eſtabliſhing a more perfect theory of the earth.

The cabinet of Sauſſure is an object worthy of the traveller's curioſity; it contains a collection of foreign and Swiſs butterflies, various petrifactions and foſſils, more particularly a large variety of baſalts and volcanic productions, numerous ſpecimens of granites and other primitive ſtones, collected during his various expeditions, and from parts which have been only viſited by himſelf. Sauſſure has lately reſigned the profeſſorſhip of experimental philoſophy, and is ſucceeded by my very worthy and ingenious friend M. Pictet Turretini, who has already diſtinguiſhed himſelf by various publications, which elucidate ſeveral important branches of experimental philoſophy †.

Paul Henry Mallet, born at Geneva in 1730, paſſed the earlier part of his life at Copenhagen as preceptor to the preſent King Chriſtian the Sixth. His introduction to the hiſtory of Denmark, under the title of Northern Antiquities, proves him a profound and accurate antiquary, and his Hiſtories of Heſſe, Brunſwic, and Denmark, ſhew him no leſs eminent as an hiſtorian. I ſhould on this occaſion be unmindful of the honour conferred on me, if I omitted to mention, that his lateſt work is a tranſlation of my Travels into Poland, Ruſſia, Sweden, and Denmark, to which he has added many remarks, and a Journey into Norway.

De Luc, reader to the Queen of Great Britain, and reſident in England, is alſo a native of Geneva. He was born in 1727, and publiſhed in 1772 his celebrated work on the modification of the atmoſphere, and on the theory of barometers and thermometers; a performance which marks a diſtinguiſhed æra in the hiſtory of experimental philoſophy, and which he continued under the title of *Idées ſur la Metéorologie.* But in his *Lettres Phyſiques et Morales, ſur l'Hiſtoire de la Terre et de l'Homme*, de Luc appears to ſingular advantage. In this learned performance, he diſplays a moſt extenſive knowledge of na-

* The third and fourth have been ſince printed.

† Sauſſure died in 1799. Sennebier, the ingenious author of Hiſtoire Litteraire de Genève, has publiſhed an hiſtorical memoir on his life and writings.

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ture, and applies it with great ſagacity in forming a new theory of the earth, and in a happy accommodation of his hypotheſis to the Moſaic account of the creation.

The cabinet of de Luc is not only remarkable for the number and rarity of many ſpecimens; but more particularly claims the attention of the naturaliſt, as a ſyſtematic collection, tending to illuſtrate his theory of the globe. With this view it may be divided into three principal pars: the firſt contains petrifactions and foſſils; the ſecond ſtones, and the third lavas and volcanic productions. The firſt part is arranged in ſuch a manner, under three diſtinct heads, as may enable the naturaliſt, 1. To compare the petrifactions of animal and vegetables with the ſame bodies, which are ſtill known to exiſt in our parts of the globe; 2. To compare thoſe petrifactions of animals and vegetables with the ſame bodies which are known to exiſt in diſtant countries; 3. To conſider the petrifactions of thoſe bodies which are no longer known to exiſt. The ſecond part comprehends the ſtones under three points of view; 1. Thoſe of the primitive mountains which contain no animal bodies; 2. Thoſe of the ſecondary mountains which contain only marine bodies; 3. Thoſe which contain terreſtrial bodies. In the third part, the lavas and other volcanic productions are diſtinguiſhed into, 1. Thoſe from volcanos now in a burning ſtate; 2. Thoſe from extinct volcanos.

I am, &c.

LETTER LXIV.—*Government of Geneva in* 1776.

THE city and territory of Geneva were formerly united to the German empire, under the ſucceſſors of Charlemagne; but as the power of the Emperors, feeble even in Germany, was ſtill weaker in the frontier provinces, the Biſhops of Geneva, like other great vaſſals of the empire, gradually acquired very conſiderable authority over the city and its domains, which the Emperor had no other means of counterbalancing than by increaſing the liberties of the people. During theſe times of confuſion, conſtant diſputes ſubſiſted between the Biſhops and the Counts of the Genevois, who, although at their firſt inſtitution conſidered as vaſſals of the Biſhops, yet claimed a right to the excluſive adminiſtration of juſtice. The citizens took advantage of theſe quarrels, and, by ſiding occaſionally with each party, obtained an extenſion of their privileges from both.

But the Houſe of Savoy having purchaſed the Genevois, and ſucceeded to all the prerogatives of the Counts, with additional power; the Biſhops and the people united to oppoſe encroachments, which were no leſs prejudicial to the authority of the one than to the liberties of the others. During this period, the reſpective pretenſions of the Counts, Biſhops, and citizens formed a government equally ſingular and complicated. The harmony, however, between the Biſhops and citizens was at length broken by the artful management of the Counts of Savoy, who had the addreſs to procure the epiſcopal ſee for their brothers, and even for their illegitimate children. By theſe methods their power in the city ſo much increaſed, that, towards the commencement of the ſixteenth century, Charles the Third, Duke of Savoy, obtained an almoſt abſolute authority over the citizens, and exerciſed it in an unjuſt and arbitrary manner. Hence aroſe perpetual ſtruggles between the Duke and the citizens, and two parties were formed; the zealots for liberty were called *eidgenoſſen*, or confederates, while the partiſans of the Duke were branded with the appellation of *mammelucs*, or ſlaves.

The treaty of alliance, which the town contracted with Bern and Friburgh, in 1526 may be conſidered as the true æra of its independence: for, the duke was ſoon after deprived

deprived of his authority, the biſhop driven from the city, a republican form of government eſtabliſhed, and the reformation introduced. From this time, Charles and his ſucceſſors waged inceſſant war againſt Geneva; but his efforts were rendered ineffectual by the intrepid bravery of the citizens, and the aſſiſtance of Bern.

In 1584 Geneva concluded a treaty of perpetual alliance with Zuric and Bern, by which it forms part of the Helvetic confederacy.

The laſt attempt of the Houſe of Savoy againſt Geneva, was in 1602; when Charles Emanuel treacherouſly attacked the town during a profound peace. Two hundred ſoldiers ſcaled the walls in the night, while the inhabitants repoſed in unſuſpecting ſecurity; but being timely diſcovered, were repulſed by the deſperate valour of a few citizens, who glorioufly ſacrificed their lives in defence of their country. As a tribute of public gratitude, theſe brave Genevians were buried with great pomp, and their names recorded on a ſepulchral ſtone. In memory of this event, ſome of the ſcaling-ladders, by which the enemy entered the town, are preſerved in the arſenal, and the petard, which was faſtened to one of the gates, when the gunner was killed before it could be diſcharged. The war occaſioned by this perfidy was concluded in the following year by a ſolemn treaty: ſince that period, uninterrupted peace has been maintained between the Houſe of Savoy and Geneva; although the King of Sardinia did not till 1754, formally acknowledge the independence of the republic.

Peace was no ſooner concluded with the Houſe of Savoy, than the ſparks of civil diſcord, ſo apt to kindle in popular governments, and which had been ſmothered by the apprehenſion of a foreign enemy, again burſt forth. During the greater part of the laſt century to the preſent period, the hiſtory of Geneva contains little more than a narrative of contentions between the ariſtocratical and popular parties, and their ſtruggles were occaſionally exerted with ſo much animoſity, as to threaten for a moment, a total revolution in the ſtate; but, have been hitherto compromiſed without producing any fatal effects *.

The power of the Great Council in 1707, was reſtrained by an edict, decreeing that every five years a general council of the citizens and burghers ſhould be ſummoned to deliberate upon the affairs of the republic. Agreeably to this law, a general aſſembly being convened in 1712, the very firſt act exerted by the people in their collective capacity, was the abolition of the above edict.

In conſequence of this extraordinary repeal, the power of the ariſtocracy continued increaſing till within theſe few years; when the citizens, by a ſingular conjunction of favourable circumſtances, joined to an uncommon ſpirit of union and perſeverance, procured ſeveral changes in the conſtitution of Geneva; by which the authority of the magiſtrates has been limited, and the rights of the people enlarged. Happy if they know where to ſtop; leſt, by continuing to extend the bounds of their own privileges, and by too much reſtraining the power of the magiſtrates, they ſhake the foundation of civil government.

The preſent conſtitution of Geneva, may be conſidered as a mean between that of the ariſtocratical and popular cantons: more democratical than any of the former, as the ſovereign and legiſlative authority reſide in the general aſſembly of the citizens; more ariſtocratical than the latter, becauſe the powers veſted in the Great and Little Councils are very conſiderable.

* The reader will recollect that this letter was written in 1776, before the Revolution of 1782, which is related in the ſubſequent letter. See an excellent narrative of theſe inteſtine commotions, and of the gradual change from an ariſtocratical to a popular form of government, in Planta's Hiſtory of the Helvetic Confederacy, chap. ix.

The

The members of the Senate, or Little Council of twenty-five, enjoy in their corporate capacity ſeveral prerogatives, almoſt equal to thoſe poſſeſſed by the moſt ariſtocratical ſtates. They nominate half the members of the Great Council, ſupply the principal magiſtrates from their own body, convoke the Great Council and the General Council, and previouſly deliberate upon every queſtion laid before theſe councils: in other words, in them is lodged the power of propoſing; conſequently as every act muſt originate from them, no law can paſs without their approbation. In this ſenate is veſted alſo the chief executive power; the adminiſtration of the finances, and, to a certain degree, juriſdiction in civil and criminal cauſes. They nominate, to moſt of the ſmaller poſts of government; and enjoy the ſame privilege of conferring the burgherſhip. They compoſe, in conjunction with thirty-five members, choſen by themſelves, the Secret Council, which never aſſembles but on their convocation, and only upon extraordinary occaſions.

Theſe prerogatives, however, are counterbalanced as well by the privileges of the Great Council, as by the franchiſes of the General Council. The privileges of the Great Council conſiſt in chooſing the members of the ſenate from their own body, in receiving appeals in all cauſes above a certain value, in pardoning criminals, in diſpoſing of the moſt important charges of government, except thoſe which are conferred by the General Council, and in approving or rejecting whatever is propoſed by the Senate to be laid before the people.

The General Council, or aſſembly of the people, is compoſed of the citizens and burghers of the town; their number on an average amounts to about 1,500, but ſeldom more than 1200 meet at the ſame time; the remainder being either ſettled in foreign countries, or abſent. I ought to have explained to you ſooner, the diſtinction between *citizens* and *burghers*: the burghers are either the ſons of citizens or burghers *, born out of Geneva, or have obtained the burgherſhip by purchaſe; the citizens are the ſons of citizens or burghers, born in the town. The burghers may be choſen into the council of two hundred, but the citizens alone can enter into the Senate, and poſſeſs the charges appropriated to that body.

The General Council meets twice a year, chuſes the principal magiſtrates, approves or rejects the laws and regulations propoſed by the councils, impoſes taxes, contracts alliances, declares war or peace, and nominates half of the members in the Great Council. All queſtions are decided by the majority of voices; and each member delivers his vote without having the liberty of debating. The reſtriction is certainly reaſonable: for, in a popular aſſembly, like this of Geneva, compoſed of citizens, the meaneſt of whom is well verſed in the conſtitution of the commonwealth, and where the people in general have a ſtrong propenſity to enter into political diſcuſſions; if every voter was permitted to ſupport and enforce his opinion by argument, there would be no end of debate, and the whole time would be conſumed in petulent declamation.

But the principal check to the authority of the Senate, ariſes from the right of *re-election*, or the power of annually expelling four members from the Senate at the nomination of the four ſyndics, and from the privilege of *repreſentation*. The right of re-election was obtained by an edict of the General Council in 1768, and is thus exerciſed. From eight Senators appointed by the Senate and approved by the Great Council, the General Council annually chuſe the four Syndics. But ſhould the General Council reject the eight candidates, and all the other Senators who are ſucceſſively preſented to them, four members of the Great Council occupy their places.

* The children of thoſe who are employed in foreign countries, in the ſervice of the ſtate, although born out of Geneva, are entitled to all the privileges of citizens.

With reſpect to the ſecond reſtraint upon the power of the Senate, the right of *repreſentation*; every citizen or burgher has the privilege of applying to the Senate in order to procure a new regulation, or of remonſtrating againſt any act of the magiſtracy. Theſe repreſentations have, perhaps, proved one of the principal means of ſecuring the liberties of the people from the encroachments of the two councils; the magiſtrates are obliged to give an explicit anſwer to theſe repreſentations; for, if the firſt is not conſidered as ſatisfactory, a ſecond remonſtrance is preſented. According to the nature and importance of the complaint, the repreſentation is made by a greater or leſs number of citizens, and it has ſometimes happened, that each remonſtrance has been accompanied by ſeveral hundred, in different bodies.

The ſalaries of the magiſtrates are ſo inconſiderable, as not to offer any temptation of pecuniary emolument: a ſenſe of honour, a ſpirit of pre-eminence, the deſire of ſerving their country, together with that perſonal credit which is derived from an office in the adminiſtration, are the principal motives which actuate the candidates to ſolicit a ſhare in the magiſtracy. Accordingly, the public poſts are generally filled by men of the firſt abilities, and of the moſt reſpectable characters. The revenues of government, at the higheſt calculation, ſcarcely amount to 30,000 pounds a year; a ſum, however, which, by a well-regulated œconomy, is more than ſufficient to defray the current expences.

It is very remarkable that, in a republic ſo free as Geneva, and where the true principles of liberty are generally underſtood, there ſhould be no preciſe code of penal law; for, although the form of the proſecution is ſettled, yet the trial of the criminal is private, and the puniſhment left to the deciſion of the magiſtrate. Nor are the franchiſes of the people aſcertained with that accuracy which might be expected. Under Ademar Fabri, biſhop of Geneva in the fourteenth century, a certain number of political regulations, both civil and criminal, together with ſeveral particular cuſtoms and franchiſes, were drawn up in form, and the biſhop took an oath to obſerve them. Theſe ſtatutes, if they may be ſo called, were confirmed by Amadeus the Eighth, Duke of Savoy. This code, to which the people appeal in all caſes of controverſy, is compiled in a very inaccurate and confuſed manner, and the magiſtrates refuſe to ſubmit to its authority, becauſe it was publiſhed before the independence of the republic was confirmed. The people have repeatedly demanded a code of municipal and penal laws, ſo expreſs, as to prevent the arbitrary deciſion of the magiſtrate, and although ſuch a code was ordered in 1738 and 1768, yet the compilation has been hitherto deferred.

The code of civil law is the moſt perfect part of the conſtitution; all matters concerning commerce being well-regulated, and private property ſecurely guarded. It is unneceſſary to trouble you with a particular detail of the ſumptuary laws which nearly reſemble thoſe in moſt other ſtates of Switzerland, where the reſtrictions of that kind are enforced. But there is one law, relating to bankrupts, too ſingularly ſevere not to be mentioned: if a member of either council becomes a bankrupt, he is immediately degraded, and from that moment rendered incapable of holding any poſt under government, until he has diſcharged all the juſt demands of his creditors; even his children are ſubjected to the ſame diſgrace; and no citizen can exerciſe any public employment, while the debts of his father remain unpaid.

In this city, as in all the other principal towns of Switzerland, a public granary is eſtabliſhed. Magazines of this kind, uſeful in all ſtates, are more particularly neceſſary in ſo populous a place as Geneva, which if the neighbouring powers were to prohibit the exportation of corn, might be expoſed to famine. The corn is dried by means of ingenious machines, and retailed to the inn-keepers and bakers; a conſidera-

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ble profit accrues to government, and there is always in case of neceſſity, a ſufficient quantity in reſerve to ſupport the inhabitants during a year and an half.

Geneva is ſtrongly fortified on the ſide of Savoy, and a garriſon conſtantly maintained; but theſe fortifications, and this garriſon are only ſufficient to guard them from any ſudden attack, and could not be long defended againſt a regular ſiege. The great ſecurity of the republic conſiſts in its alliance with the Swiſs cantons, by means of Zuric and Bern: as it is the intereſt both of the Kings of France and Sardinia to be in friendſhip with the Swiſs and to preſerve the independence of Geneva; it derives its greateſt ſecurity from a circumſtance which, in ſome caſes, would be the ſource of danger; namely, its vicinity to the dominions of ſuch powerful neighbours *. Geneva is the only republic in Switzerland, which has no regular companies in any foreign ſervice †. I am, &c.

LETTER LXVIII.—*Como.—Mendriſio.—Lake of Como.—Pliniana.—Fort of Fuentes.—Laghetto di Chiavenna.—Entrance into the Country of the Griſons.*

DEAR SIR, *Chiavenna, July* 21, 1779.

SINCE I travelled over part of Switzerland, I have been deſirous to make a tour through the remainder of that country, particularly to viſit the Griſons; and I ſhall now take the opportunity of indulging my curioſity, and propoſe to myſelf the ſatisfaction of continuing to ſend you, on this as on the former occaſion, my obſervations and remarks.

I quitted Milan laſt week, and proceeded through a gently riſing country, well-wooded and fertile in corn and vines, to Como. This town being diſtinguiſhed by the birth of Pliny the younger, the inhabitants have placed his ſtatue in a niche on the outſide of the church, with a Latin inſcription bearing the date of 1499. I need not remind you, with how much rapture and enthuſiaſm Pliny mentions the delightful ſituation of his native town, and the romantic ſcenery of the environs, in thoſe letters of which you have given to the public ſo accurate and elegant a tranſlation.

Como is indeed moſt pleaſantly ſituated, in a narrow vale, encloſed by hills, upon the ſouthern extremity of a beautiful lake; it is ſurrounded by a wall flanked with pictureſque towers, and backed by a conical eminence, on which ſtands the ruins of an antient caſtle. The houſes are neatly built of ſtone; and the cathedral is a handſome edifice of white marble, hewn from the neighbouring quarries. The inhabitants have eſtabliſhed ſeveral manufactories of cotton and ſilk, and carry on ſome trade with the Griſons.

From Como I made an excurſion to Mendriſio, one of the Italian bailliages belonging to the ‡ twelve cantons of Switzerland. Theſe bailliages formed part of the Milaneſe, and in 1512 were ceded to the cantons by Maximilian Sforza, who was raiſed to the ducal throne by the Swiſs, after they had expelled the troops of Louis the Twelfth, and taken poſſeſſion of the duchy. Francis the Firſt, ſucceſſor of Louis, having re-

* The conqueſt of Savoy by the French deſtroyed this equilibrium, and was the certain prelude to the ſubjugation of Geneva.

† The account (given in Letters 65, 66, and 67) of the revolutions of Geneva 1782, 1789, "a puddle in a ſtorm," is omitted as little intereſting at this period of grand revolutions.

‡ Appenzel is excluded from the co-regency becauſe the ceſſion was made in 1512, the year before that republic was admitted into the Helvetic confederacy. Beſide Mendriſio and Balerna, the other Italian bailliages are Locarno, Lugano, and Val-Maggia. Uri, Schweitz, and Underwalden, poſſeſs three bailliages, Bellinzona, Riviera, and Val-Brenna, which were equally diſmembered from the Milaneſe.

covered the Milaneſe and ſecured his conqueſt by the victory of Marignano, purchaſed the friendſhip of the Swiſs by confirming their right to the ceded territory; a right which the ſubſequent dukes of Milan were too prudent to diſpute.

Mendriſio and Balerna* is one of the ſmalleſt of theſe tranſalpine bailliages: the bailiff or governor is appointed ſucceſſively by each of the twelve cantons, and remains in office two years. He is ſupreme judge† in criminal affairs without appeal; a power too great to be entruſted to a ſtranger, commonly ignorant of the laws, and intereſted to increaſe his revenue. In civil cauſes an appeal lies to the ſyndicate of Switzerland. The inhabitants enjoy conſiderable privileges, civil, eccleſiaſtical, and commercial. The diſtrict is extremely fertile in vines, corn, and paſturage, and yields a great quantity of excellent ſilk.

Returning to Como, I embarked upon the lake; the banks near the town are richly wooded, and ſtudded with country houſes and ſmall villages, which lie upon the gentle acclivities near the margin of the water. At firſt the lake is ſcarcely a quarter of a mile broad, but it widens near a neck of land upon which is ſituated the ſmall village of Turnio. The neighbourhood of Turnio, and the diſtricts bordering the lake of Como, ſupply, for the moſt part, thoſe Italian emigrants who wander through Europe vending barometers and thermometers; of whom numbers annually reſort to England.

After an hour's rowing we reached Pliniana, remarkable for a ſingular fountain, which is ſtill to be ſeen in the ſame ſtate as deſcribed by Pliny. Pliniana, a villa belonging to a Milaneſe nobleman, is conſtructed upon the edge of the water, in a moſt romantic ſituation, backed by rocks covered with trees and paſture. The maſter of the houſe received me with much civility and politeneſs, and kindly accompanied me to the fountain. It is a ſpring, which burſts from the rock cloſe to the houſe, and falls in natural caſcades into the lake. I examined ſome of the phænomena alluded to in the following deſcription, and received the account of the others from the gentleman himſelf, who had repeatedly made them the ſubject of his obſervation. The ſpring ebbs and flows three times a day; it gradually riſes, until it forms a conſiderable ſtream, and then as gradually ſubſides, till it becomes almoſt dry. I ſaw it in its flow, and meaſured the increaſe by placing ſtones at different diſtances, which were ſucceſſively covered in a ſmall ſpace of time. This increaſe and decreaſe is regular, excepting in bad weather: in the late ſeaſon, which has been extremely fair, the ebb and flow were remarkably uniform. The original paſſage, in which Pliny deſcribes the ebb and flow of this ſpring, is written upon the wall of an adjoining apartment.

Fons oritur in monte, per ſaxa decurrit, excipitur cœnatiunculâ manu factâ; ibi paululùm retentus in Larium lacum decidit. Hujus mira natura: ter in die ſtatis auctibus ac diminutionibus creſcit, decreſcitque. Cernitur id palam, et cum ſummâ voluptate deprehenditur: juxta recumbis, et veſcêris, atque etiam ex ipſo fonte (nam eſt frigidiſſimus) potas: interim ille certis dimenſisque momentis vel ſubtrahitur vel adſurgit annulum; ſeu quid aliud ponis in ſicco, alluitur ſenſim, ac noviſſimè aperitur; detegitur rurſùs paulatimque deſeritur: ſi diutius obſerves utrumque iterum ac tertiò videas ‡.

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* In the new diviſion of Switzerland, Mendriſio and Balerna were included in the canton or department of Lugano.

† In caſe of capital puniſhment, he is obliged to conſult the ſecretary, notary, and the other officers of the diſtrict; but as they have no vote, his power is ſupreme.

‡ *Plin. Epiſt.* lib. iv. Ep. xxx.—"There is a ſpring which riſes in a neighbouring mountain, and running among the rocks is received into a little banquetting-room, from whence after the force of its current is a little reſtrained, it falls into the Larian lake. The nature of this ſpring is extremely ſurpriſing; it ebbs and

Having gratified my curioſity at Pliniana, I embarked, and continued to Clarice, where I paſſed the night. The weather, which has lately been uncommonly ſultry, is ſuddenly changed, and this morning a violent thunder-ſtorm overtook us upon the lake; the water being extremely agitated, we landed at a ſmall village upon the weſtern ſhore, in order to wait until the ſtorm ſhould ſubſide. The navigation of theſe lakes, which are encloſed between the mountains, is occaſionally dangerous, according to Virgil's deſcription of the Benacus, or Lago di Guarda.

Tu, Lari maxime, tuque
Fluctibus et fremitu aſſurgens, Benace, marino.

The Lake of Como is about thirty-ſix miles in length, in general from two to three broad, and four at the wideſt part, where it is divided into two branches. The great branch leads directly to Como; the ſmall branch, called the lake of Lecco, diſcharges the Adda, and communicates by means of that river and the canals * of the Adda and the Canale Vecchio, with Milan.

The borders are high hills covered with vines, Spaniſh cheſnut, walnut, and almond trees, and dotted with numerous villages and ſmall towns. The hills bounding the lake riſe gradually higher and higher, from thoſe which encircle Como to the crags which tower near its upper extremity.

The ſtorm at length ſubſiding, I embarked, and proceeded to Bellano, whoſe ſtreets are ſo narrow as ſcarcely to admit the ſmalleſt cart. It is ſituated at the foot of a lofty precipice, rent from top to bottom by a chaſm, through which a furious torrent forces its way. A bridge is thrown acroſs the chaſm, from whence the ſpectator looks down with terror into a gulph ſcarcely inferior in depth to that at the Panten-Bruck †, in the canton of Glarus, and an aqueduct is conducted along the precipitous ſides of the rock. I again embarked, and proceeded to Domaſio, where I waited upon the governor, to obtain the permiſſion of viſiting the Fort of Fuentes: my requeſt being readily complied with, I croſſed the lake, accompanied by a ſoldier, and landed at Collico.

A little above Domaſio, on both ſides of the lake, begins the *malaria*, or unwholeſome air; the borders are no longer abrupt hills but a flat ſwamp, formerly covered with water. The inhabitants are ſubject to intermitting fevers; on which account during the heats of ſummer, when the malignity of the atmoſphere is at its height, the greater part quit the plain, and retire to the neighbouring mountains. I found Collico and its neighbourhood almoſt entirely deſerted; the cottages were ſhut up; and had it not been for the appearance of a ſtraggling man and woman, ſhould have concluded this part of the country to have been uninhabited. After walking about two miles from Collico, we came to the bottom of the rock, upon which ſtands the Fort of Fuentes. But before we aſcend, I ſhall detain you a moment with a ſhort hiſtory of this fort, which at the beginning of the laſt century was ſo much celebrated in the annals of Europe.

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and flows regularly three times a day. The increaſe and decreaſe is plainly viſible, and very entertaining to obſerve. You ſit down by the ſide of the fountain, and whilſt you are taking a repaſt and drinking its water which is extremely cool, you ſee it gradually riſe, and fall. If you place a ring, or any thing elſe at the bottom when it is dry, the ſtream reaches it by degrees till it is entirely covered, and then again gently retires from it; and if you wait you may ſee it thus advance and recede three times ſucceſſively." *Melmoth's Tranſlation.*

* See Letter 88. † See Letter 6.

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One of the articles in a treaty between Francis Sforza, Duke of Milan, and the Griſons, expreſsly ſtipulating that no fort ſhould be conſtructed in the diſtrict of *Piantedio*, was confirmed by the Spaniſh branch of the Houſe of Auſtria, which ſucceeded Charles the Fifth in the poſſeſſion of the Milaneſe. Notwithſtanding this agreement, when the religious diſputes, occaſioned by the introduction of the reformed religion into the Valteline, created a jealouſy between the Houſe of Auſtria and the Griſons, the Count de Fuentes, governor of Milan, laid, in 1603, the foundation of the fort, which he called after his own name, and ſaw it completed in 1606. From this place ſituated in the *Piantedio*, he introduced troops into the Valteline, and ſupported the inhabitants in their hoſtilities againſt the Griſons. Henry the Fourth of France, alluding to the conſtruction and ſituation of this fort upon the borders of Italy, and near the confines of the Griſons, uſed to ſay, *Il veut du même nœud ſerrer la gorge de l'Italie et les pieds aux Griſſons* *.

If you are not fatigued with this preliminary account, we will now mount to the fort, and take a view of its preſent ſtate. It is built upon an inſulated rock, about a mile and a half from the neareſt ridge of mountains, and two miles from the lake, ſo that it completely commands the only great opening which leads into the Valteline, either from the Milaneſe or the Griſons; a ſituation of great importance, when the poſſeſſion of the Valteline was an object of conſequence to the Houſe of Auſtria. The fortifications are a quarter of a mile in circumference, conſtructed with ſtone, and contain a few ruinous barracks for ſoldiers, and the governor's houſe, which is in a moſt wretched condition. The whole garriſon conſiſts of three ſoldiers, who at the expiration of three days, return to Domaſio, and are relieved by an equal number: the only inhabitants are a peaſant and his wife, who have reſided there a year, and have been almoſt conſtantly afflicted with the ague. The plain below the rock being entirely marſhy, and covered with ruſhes, exhales a peſtilential effluvia, which infects the atmoſphere, and occaſions the unwholeſomeneſs of the fort. The Spaniards were accuſtomed to ſtyle this place, from its peculiar ſituation, the *yoke* of the Griſons, while the Griſons, in alluſion to its bad air, termed it with more propriety the *grave* of the Spaniards.

The view from the fort is remarkably fine and picturesque. On one ſide, the rich Valteline, watered by the turbulent Adda; on the other, the lakes of Como and Chiavenna, beautifully encircled with numerous towns and villages. The hills which ſkirt the Valteline and the lake of Como, preſent a variegated landſcape of foreſts, cornfields, and paſtures, finely contraſted, towards the Griſons, by the rugged Rhetian alps covered with eternal ſnow.

Having taken leave of the three ſoldiers, and bid adieu to the peaſant and his wife, I deſcended into the plain: the ſoil is fertile, but being ſubject to frequent inundations, is not capable of conſtant cultivation. That part which lies between the fort and the lake is ſo marſhy, that although the ſtraight line to the place of embarkation ſcarcely exceeded two miles, yet I was obliged to make a circuit of five before I arrived. I paſſed a range of ſquare ſtones which form the boundary between the Milaneſe and the country of the Griſons: on one ſide of each ſtone was inſcribed *Stato di Milano*, on the other *Grigioni*: they were put up, as the date informed me, in 1763, the year in which the treaty, or the *capitulation* of Milan, was concluded between the Empreſs of Germany, as ſovereign of Milan, and the Griſons. By this treaty the limits of the two ſtates were finally ſettled; and ſeveral other ſubjects of diſpute amicably adjuſted. Having reached the Adda, which, for a ſhort ſpace, makes the line of ſeparation between the Milaneſe and Griſons, I walked along its banks; its ſtream is muddy, and navigable

* With the ſame knot he binds the neck of Italy and the feet of the Griſons.

only

only by rafts. Moſt of the maps of the lake of Como are erroneous, in repreſenting that lake and the *Laghetto* di Chiavenna as one great piece of water, and the Adda as flowing into the former; whereas the two lakes are diſtinct bodies, and the Adda joins a ſmall ſtream which iſſues from the *Laghetto*, and thus united falls into the lake of Como.

I embarked near Dacio, the laſt village in the Milaneſe, at which place all boats laden with merchandiſe are obliged to pay a ſmall duty. Soon afterwards I entered the lake of Chiavenna, which belongs to the Griſons. The views of this lake are extremely wild and magnificent; ſurrounded as it is with barren rocks, craggy, and riſing into ſpires ſprinkled with ſnow: the baſes of the dreadful precipices are loſt in the dead and overſhadowed water, dangerous on account of its malignant vapours, and affording no aſylum, ſcarcely a landing-place, to the crews of thoſe frail boats caught unwarily in the violent ſtorms to which it is ſubject. I landed at Riva which conſiſts of a few ſcattered cottages and warehouſes, and having procured ſome horſes, proceeded to Chiavenna by moon-light. The villages were almoſt deſerted, and the inhabitants withdrawn to the mountains. The people in general are ſo greatly alarmed at the unwholeſome ſtate of the air in this ſeaſon, that the watermen who rowed me from Como, although exceedingly fatigued, went back to Domaſio, and exerted all their eloquence to diſſuade me from my firſt intention of remaining in the plain: overcome by their repeated importunities I purſued my journey to Chiavenna. Indeed no other proof of the tainted air is requiſite than the aſpect of the inhabitants; the few peaſants whom I met in the villages, as well near the Fort of Fuentes as in the valley of Chiavenna, were moſtly wan and livid. The narrow valley through which I paſſed from the lake to Chiavenna, is encloſed between the firſt and loweſt chain of the Rhetian Alps; it is watered by the torrent Maira, and produces Turkiſh wheat, paſture, cheſnuts and mulberry-trees, together with a great abundance of willows. The aſcent his rapid to Chiavenna, which is built in a higher and more wholeſome ſituation.

LETTER LXIX.—*Plurs.—Its Deſtruction in the laſt Century by a Fall of a Mountain.—Valley of Pregalia.*

July 25.

MY laſt letter left me at Chiavenna, of which town I defer ſending you any deſcription, as I propoſe returning there in my way to Coire. The morning after my arrival, I rode about four miles, to the ſpot formerly occupied by the town of Piura, or Plurs, which was totally overwhelmed by the fall of mount Conto. This terrible cataſtrophe happened on the 25th of Auguſt 1618.

Plurs was a large and flouriſhing town, ſubject, as well as Chiavenna, to the Griſons. Contemporary writers mention, that it contained three churches, many large houſes, and a ſtone bridge over the Maira, and that its population amounted to at leaſt 1500 inhabitants who carried on no inconſiderable commerce. The valley in which it was ſituated is very narrow, and the whole town was buried in one undiſtinguiſhed ruin. A contemporary account relates, that the cloud of duſt and rubbiſh was ſo great as to cover the heavens like ſmoke, and even to extend as far as Chiavenna; the inhabitants of which place, alarmed at this phenomenon, were ſtill more terrified at the ſudden diſappearance of the Maira, (whoſe courſe was ſtopped by the fallen fragments of rock, and apprehenſive that the torrent had undermined Chiavenna, precipitately fled in great numbers to the mountains.

I walked over the ſpot where Plurs was built: parts of the antient walls, and the ruins of a country houſe, which belonged to the Franchi, the richeſt family in the place, are the only remains of its former exiſtence; and theſe would not be noticed by a paſſenger. A peaſant who has a cottage cloſe to the ruins, pointed out to me every place as it had been explained to him by his grandfather. He ſhewed me where ſtood the churches and principal houſes, the channel through which the river then flowed, and where the bridge was conſtructed. He informed me, that in digging, ſeveral dead bodies had been found; particularly the bones of a prieſt, covered with ſhreds of garments, which indicated that he was employed in divine ſervice when the rock overwhelmed the town. Houſhold utenſils are frequently dug up; the other day ſeveral corpſes were diſcovered, and on the finger bone of one were a ſilver and two gold rings. Vineyards, cheſnut-trees, and houſes cover the ſpot where this unfortunate town was once ſituated.

The valley in this part has an oval appearance, and is ſkirted by a beautiful grove of cheſnut-trees; the ſurrounding mountains are ſteep and rugged, and from the top of mount Savonne, *l'acqua fragia*, a conſiderable torrent precipitates itſelf, at firſt in a full unbroken ſtream, and afterwards divides into three ſeparate falls, highly ornamental to the beautiful ſcenery.

I next followed my guide to the houſe of a gentleman near Chiavenna, to ſee a drawing of Plurs before it was overwhelmed; his anceſtors had large poſſeſſions, and were the richeſt family in the town. The maſter of the houſe ſhewed me the picture, and explained to me the ſituation of the different buildings. He then politely accompanied me through his grounds to a manufactory of ſtone-pots called *Lavezzi*, which are made near Chiavenna, and much uſed for kitchen utenſils throughout theſe countries, and ſome parts of Italy. This manufacture is very antient: Pliny mentions the * ſtone under the denomination of *lapis Comenſis*, becauſe the pots were ſent to Como, and there exported.

Theſe utenſils are made by the following proceſs: the workmen hew from the quarry ſemicircular blocks of ſtone, from which, with an inſtrument reſembling that uſed by turners, they hollow a veſſel about a foot in diameter. From the remaining maſs they frame another of inferior dimenſions, and continue their operation till they have produced a ſeries of ſemicircular pots, gradually decreaſing to the ſize of a ſmall baſon. From Plurs I continued along the valley of Santa Croce, and entered the country of the Griſons at the ſmall village of Caſta Segna, in Pregalia.

At Bondo, which is a ſmall village in the valley of Pregalia, Count de Salis, formerly Britiſh envoy to the Griſons, has conſtructed a large and commodious houſe entirely fitted up in the Engliſh taſte. It is ſituated at the extremity of a ſmall plain ſcarcely half a mile in length, and about four hundred paces broad, bounded on each ſide by a chain of the Rhetian Alps, whoſe ſides are covered with foreſts intermixed with luxuriant paſture. The plain is encloſed by ſome rugged rocks, behind which others ſhoot to an enormous height, crowned with perpetual ſnow; this little plain produces excellent paſture, barley, rye, vegetables of all ſorts, and ſome fruit-trees. Through it daſhes the torrent Maira over broken fragments of rock.

I rambled about the valley of Pregalia and the neighbouring mountains; and obſerved the domeſtic œconomy of the peaſants. Their food is chiefly ſalt meat, rye

* *Lapis Ollaris.*—Pliny's *Lapis Comenſis* is claſſed by Wallerius among the ſteatites, by Linnæus among the calcs. It is opake, unctuous to the touch, and compoſed of mica and ſteatites. When firſt taken from the quarry it is eaſily cut and turned; on being expoſed to the air it hardens, but will take no poliſh.

bread,

bread, milk, cheese, polenta, and chesnuts, which are so plentiful at this season of the year that they make a principal ingredient in all their meals: the most common methods of dressing them are to boil, and serve them up with crumbs of bread, or to grind them to a paste, and then heat them with milk. The peasants are well clothed. They manufacture linen and coarse cloth at home, every family having a loom, which is worked in the winter season; the finer cloth, which they wear only on Sundays and festivals, is procured from Germany.

The valley of Pregalia reaches from the Podesteria of Plurs to the confines of Upper Engadina, and contains about eighteen hundred inhabitants: it is a high jurisdiction in the league of God's House, and is divided into the two independent communities of *Sopra* and *Sotto Porta*; so denominated from a wall with an opening called *Porta*, through which the road passes, and which separates the valley into two equal parts. These two communities enjoy a democratical form of government: a short account of which will convey some idea of the mode in which the administration of affairs is carried on in these little states.

Each community has its general assembly, in which the sovereign power is vested; every male at the age of eighteen has a vote; in each of these assemblies the magistrates and representatives to the general diet are chosen by the majority of voices; instructions are given to the representatives, and all appeals from the diet decided in the last resort. For civil causes the two communities have separate tribunals, composed of the *Landamman*, who is president, and twelve assistants; and an appeal lies from one to the other. For criminal affairs there is one court of justice, composed of a *Podesta*, and an equal number of judges from each community. The Podesta is thus chosen: each community appoints two persons, who nominate nine others, and these nine choose two candidates, who draw lots for the office. The same person is not unfrequently nominated Podesta by both parties; and then it is decided by lot to which he belongs. This criminal court of justice is always held at Vico Soprano, in Sopra Porta. In all delinquencies the punishments are extraordinarily severe, and the remission or alleviation is entirely left to the judges, who generally take a commutation in fines; so that if the criminal is poor he undergoes the punishment, if rich, he redeems himself by money.

LETTER LXX.—*Description of the Marmot.*

THE marmot is extremely common in the mountains of Switzerland, and particularly in this part of the Grisons; and, as many erroneous accounts of this sagacious little animal have been given, I shall send you an extract, selected from a description written in the German tongue by Dr. Girtaner *.

The marmot inhabits the highest and most inaccessible mountains, prefers the narrow valleys, and particularly the western or southern aspect, as the warmest, and avoids moist places. After sleeping during winter, he issues from his hole at the opening of spring, and descends to the lower regions, where vegetation is forward. In summer he again ascends the rocky heights, and frequents solitary caverns. He feeds upon herbs and roots, and particularly on the alpine plantain, mountain spingel, alpine lady's mantle, mountain sorrel, alpine toad-flux, alpine trefoil, and alpine starwort †; when

* A French translation of this account is given in Rozier's Journal for 1786.

† *Plantago alpina, Phellandrium mutellina, Alchemilla alpina, Rumex digynus, Antirhinum alpinum, Trifolium alpinum, Aster alpinus.*

tame, he eats almoſt every thing except fleſh. On drinking, he raiſes up his head like fowls at every ſip, looking on each ſide with timorous watchfulneſs; he drinks but little, and is extremely fond of butter and milk.

At break of day the old marmots come out of their holes and feed; afterwards they bring out their young ones, who ſcamper on all ſides, chaſe each other, ſit on their hind feet, and remain in that poſture, facing the ſun, with an air expreſſive of ſatisfaction. They are particularly fond of warmth, and when they think themſelves ſecure will baſk in the ſun for ſeveral hours. Before they collect graſs either for food or for their winter habitations, they form themſelves into a circle, ſitting on their hind legs, and reconnoitre on all ſides; on the leaſt alarm, the firſt gives inſtantly a ſhrill cry, which is communicated from one to the other, and they eſcape without repeating the noiſe. The chaſſeurs, by imitating theſe ſucceſſive whiſtlings, approach ſo near as to come within ſhot of them.

The marmot has a quick eye, and diſcovers the enemy at a conſiderable diſtance. He never does the leaſt injury to any animal, and flies when he is purſued. In fact, when apprehenſive of being followed, whole families quit their dwellings, and wander from mountain to mountain; but when flight is impoſſible, they defend themſelves with ſpirit againſt men and dogs, and attack all who approach them with their teeth and claws.

They live together in ſocieties. They have both ſummer and winter dwellings, which are eaſily diſtinguiſhed. The former remain open during the whole year; whereas the latter are cloſed at the end of September. In the ſummer dwellings is found dung in great abundance, but no hay; on the contrary, the winter habitations never contain any dung, but much hay; near the latter is perceived a more conſiderable quantity of earth, which annually increaſes according to the ſize of the dwelling, and the augmentation of the family.

In the formation of their dwellings they ſcoop out the earth with great dexterity and expedition; a ſmall part they throw away, and by beating the remainder cloſe, render the paſſage very compact and ſolid. The opening being ſcarcely more than ſix or ſeven inches in diameter, is juſt large enough to admit the animal. The interior is from eight to twenty feet in length; it conſiſts of a paſſage, which, at about five or ſix feet from the entrance, divides into two branches; the one leading to a ſmall cavity, the other to the chamber in which they repoſe. The paſſage and the two branches are always carried in a ſtraight line, unleſs the intervention of a rock, or any other impediment, obliges them to take another direction. The chamber is round or oval, arched at top, and reſembles the ſhape of an oven; it is from three to ſeven feet in diameter, and is ſtrewed with hay, in which the marmots lie in a dormant ſtate during the whole winter.

On retiring to this dwelling about the beginning of October, they carefully cloſe the entrance ſo as to exclude all air, with a cement of earth mixed with ſtones and hay. On opening this chamber three weeks after it is cloſed, the marmots are diſcovered lying on the hay cloſe to each other, and rolled up like hedge hogs, without the leaſt appearance of life. Uſually from five to ſixteen are found together; ſometimes, but rarely, two families occupy the ſame dwelling, and occaſionally, but very ſeldom, one marmot has been diſcovered alone. If expoſed to warmth they awaken. The tame marmots do not ſleep during winter; but on the approach of that ſeaſon, excited by inſtinct, collect materials towards conſtructing their dwellings. The wild marmots occupy their winter habitations in October, and quit it towards the latter end of March or the beginning of April. In removing the cement which cloſes the opening they do not puſh it

outwards, but draw it inwards, and probably convey the materials, which would block up the principal paſſage, into the ſmall cavity.

They copulate ſoon after coming out: in June or July young ones have been obſerved, about the ſize of rats.

It is probable that they do not eat during their torpid ſtate; for the ſame quantity of hay is obſerved both in ſpring and autumn in their winter habitations, and thoſe which have been dug out in that ſeaſon are thin and perfectly empty. The fleſh of the marmot is eatable, and its ſkin is uſed for furs.

LETTER LXXI.—*Paſſage of the Malloggia.—Lake of Siglio.—Selva Piana and St. Morezzo.—Expedition to the Julian Columns.—Bevio.*

St. Morezzo, July 31.

THE road through Pregalia to Coire admits carriages, but is very indifferently paved. I paſſed through the village Promontogno, then through the Porta to Stampa, Vico-Soprano, Borgo Nuovo, and Caſaucia. The houſes in this valley are of ſtone, plaſtered and white-waſhed; are not ſcattered, as in the ſmall cantons of Switzerland, but every half mile a cluſter of habitations preſents itſelf.

Beyond Bondo the country produces no more cheſnut-trees, but principally larch and firs; it yields graſs, barley, and rye. Near Caſaucia is the barren and lofty mountain of Set. I here quitted the high road which turns towards Coire, and about a mile and a half further where the valley terminates, I began to mount a very ſteep aſcent, by the ſide of the torrent Maira, which ruſhes amidſt a foreſt of firs; it deſcends from the glacier of the Malin, a ridge of alps ſeparating the Valteline from the country of the Griſons. A little further I reached the top of the Malloggia, and obſerved the Orlenga, a gliſtening torrent, falling from the Lungin mountain, and forming the remoteſt ſource of the Inn. The Malloggia is the point of partition, dividing the waters which run towards the Black Sea, from thoſe which flow into the Adriatic. The tops of the circumjacent mountains are moſtly rugged, and covered with ſnow; lower down they are enlivened with underwood, firs, and paſture.

I ſtopped at a ſingle houſe, a kind of inn, where travellers are accommodated. The landlord and his family ſpeak an Italian jargon ſimilar to the Milaneſe dialect, which is common in Pregalia. The next place is Siglio in Upper Engadina, where Romanſh is the general tongue. On enquiring whether it was ſimilar to the Italian ſpoken in Pregalia, the landlord informed me that the two languages are totally different; and the ſervant aſſured me, that ſhe could ſcarcely comprehend a word which was uttered by the inhabitants of Siglio. From Malloggia I deſcended, croſſed the Orlenga, and continued along the banks of the lake of Siglio; the way was bad and craggy until I came to the confines of Engadina, where an excellent road commenced.

The ſmall lake of Siglio is about five miles in circumference, and finely ſituated between high perpendicular rocks; it takes its name from Siglio, which we left at a little diſtance on our right. I croſſed the Inn ſoon after it iſſues from the lake, and purſued my courſe over the dry bed of the torrent Fait, which formerly flowed into the Inn, but has lately changed its courſe, and now falls into the lake of Selva Piana. Theſe torrents often ſhift their channels; and I could obſerve evident traces, that ſome of them had, at former periods, watered the ſmall plain between the lakes of Siglio and Selva Piana. The village of that name ſtands pleaſantly upon a ſmall riſing ground, and the lake, though much ſmaller than that of Siglio, far ſurpaſſes it in the beauty of its banks,

which are fringed with hanging groves of fir and larch. From this lake the Inn iſſues in a larger ſtream, falls again at a little diſtance into the lake of St. Morezzo, from whence it daſhes through a deep rocky channel into the plain of Celerina, where it flows in a more tranquil current. Theſe little plains, or valleys, are broader and longer than that of Bondo, and produce as much graſs, which is now mowing.

At Selva Piana, I attempted to converſe with ſome of the inhabitants, but could ſcarcely comprehend them; I have been endeavouring alſo to talk with the natives of this place. Many ſpeak Italian, as it is much frequented by ſtrangers for the ſake of the waters; but the greater part underſtand nothing but Romanſh. This morning being Sunday I attended divine ſervice; the clergyman preached in the language of the country, and I could comprehend little more than that the text was in the 22d chapter of St. Luke. The ſermon, which is the principal part of the ſervice, was about an hour long; the prayers were ſhort, the girls ſung pſalms; ſome of them had delightful voices, and performed with great taſte and propriety, a proof of their neighbourhood to Italy.

St. Morezzo, or, as it is moſt commonly called, St. Maurice, ſtands agreeably upon the ſide of a hill, overlooking a ſmall lake which lies in the boſom of the mountains, and is bounded by riſing banks ſtudded with wood and paſture. This village is remarkable for a plentiful ſpring of mineral water, much eſteemed for its efficacy in curing ſeveral diſorders; it iſſues from the ground about the diſtance of half a mile on the other ſide of the river Inn, is a very plentiful ſource, and ſtrongly impregnated with vitriol. On plunging Reaumer's thermometer into the ſource it ſunk from 12 to $4\frac{1}{2}$. I was informed that, from repeated obſervations, the thermometer varied according to the greater or leſs degree of rain; but upon an average the mercury generally ſtood between 4 and 7.

I am lodged in one of the boarding-houſes, which abound in this place for the accommodation of perſons who drink the waters. The company at table conſiſt at preſent of only two merchants of Appenzel, who are eſtabliſhed at Genoa, and a clergyman of Lower Engadina. As I ſoon diſcovered the clergyman to be an intelligent man, I diſcourſed with him upon the ſtate of religion among the reformed part of the Griſons, and particularly relating to the *Pietiſts*, a ſect which has lately made great progreſs in theſe parts. From the account given by the clergyman, who evidently leaned towards their opinions, theſe Pietiſts appear ſimilar to our Methodiſts: they exalt faith above good works, affect to be uncommonly rigid and pious, condemn all diverſions, card-playing, and aſſemblies, as criminal; frequently deſpair of ſalvation, fancy viſions, enjoy ſupernatural inward illuminations, and employ ſo much time in prayer as to neglect their ordinary buſineſs. The clergymen of this ſect are for the moſt part ignorant and ſuperficial, are vehemently vociferous in the pulpit, thunder out reprobation, and expatiate upon juſtification, without explaining the methods of avoiding the one, and of obtaining the other.

Theſe preachers, notwithſtanding their affectation of a total indifference to worldly matters, do not confine their views merely to theological ſpeculations, but pay a conſiderable degree of attention to political affairs; and as by means of their authority in religious concerns they poſſeſs a conſiderable influence over the votes of their pariſhioners, they are on that account much careſſed and countenanced by ſeveral leading perſons among the Griſons.

The dreſs of the women is ſingular, and not unbecoming; it conſiſts of a black or blue jacket with red ſleeves, ſtriped blue and white petticoats, a ſmall black velvet cap trimmed with gold or ſilver lace, with a black or white lace border hanging over the forehead.

From

From St. Morezzo I made an excurſion to the Julian Columns, of which Scheuzer has given a deſcription and an engraving in his *Itinera Alpina*: he ſuppoſes them to have been erected by Julius Cæſar, in order to mark the limits of his conqueſts in theſe parts, and aſſerts that *Ne plus ultra*, and *Omitto Rhetos Indomitos*, are inſcribed upon them.

After paſſing Selva Piana, I turned up a path which leads to the Julian Alps, continued about two hours over rugged rocks, and reached the Julian Columns, if they deſerve ſo dignified an appellation. They are of a circular ſhape, ſomewhat ſimilar to the Roman mile-ſtones, placed at the diſtance of about forty feet from each other. Their height above the ground is four feet, and they ſeem to be buried a foot, or ſcarcely ſo much; their circumference is about five feet. They have neither pedeſtals nor capitals, and are flattiſh at top, with a ſmall round hole in the middle four inches diameter and ſix deep; they were formed by art but in the rudeſt manner, and do not contain the ſmalleſt traces of any inſcription. We have no reaſon therefore to conclude, that theſe pillars were erected by Julius Cæſar to aſcertain the boundary of his conqueſts, or at leaſt we have no proofs upon which we can depend for the truth of this popular ſtory. I do not however regret that I made the excurſion; for my curioſity, diſappointed in a view of the pillars, has been gratified in viſiting theſe wild and romantic alps.

The Julian Alps produce much paſture, but no wood, which is a proof of their great elevation. Near the ſtones juſt deſcribed is a piece of water called the Julian Lake; it is ſupplied from a glacier on a ſuperincumbent mountain, from which a torrent deſcends to the lake of Selva Piana, and may be conſidered as a ſource of the Inn.

I ſoon afterwards ſtopped at a cottage, the only houſe in the whole extent of theſe alps; it is not occupied but during ſummer; the tenants every night houſe the cattle that graze upon theſe mountains, and make large quanties of butter and cheeſe. Having taken a refreſhing bowl of thick cream, I began my deſcent, and obſerved numerous ſmall ſtreams; ſome iſſuing from the rocks, others falling from the glaciers, and forming the firſt ſources of the Little Rhine. The path was ſo ſteep and craggy that I gave my horſe to the guide, and preferred walking; about five miles from the pillars I arrived at Bevio, a ſmall village upon the Little Rhine, in the high road leading to Coire. Every one being employed in hay-maying, I could not gain admittance into the inn; ſome friars, however, offered me their houſe and dinner, and prevented me from returning, as I had propoſed, to the cottage upon the Julian Alps.

On queſtioning theſe friars concerning the conſtitution of the republic of Bevio, they informed me that Bevio and Valmorara form one community, governed by eleven magiſtrates, though the number of voters who appoint theſe magiſtrates ſcarcely exceeds forty; the chief is called *Miniſtrale*, and is confirmed every year; for which act of poliſeneſs each voter annually receives a florin. About one-third of the merchandiſe from Como to Coire paſſes by Bevio, but the greater part is ſent by Splugen. After dinner I returned over the Julian Alps to St. Morezzo.

LETTER LXXII.—*Upper Engadina.—Bever.—Zutz.—Scampf.*

Zutz, Auguſt 2.

THE ride from St. Morezzo to Zutz, through Celerina, Samada, Ponto, and Madulein, is extremely pleaſant. Theſe villages lie chiefly upon the ſides of the mountains gently riſing above a plain, which in ſome parts is a mile broad, in others ſo narrow as to be entirely occupied by the Inn. The valley is encloſed on both ſides by a chain of alps, covered for a conſiderable height with woods interſperſed with paſture, and capped

with ſnow. The river, which here is free from cataracts, is joined by innumerable torrents that ruſh down the ſides of the rocks, or burſt from the ground.

The Inn, during its progreſs in this part, is very unlike moſt of the rivers which I traced in my former tour. The Rhone, the Reuſs, and the Aar, for inſtance, fall, near their ſources, in a continual cataract, over fragments of rock, and through the moſt wild and uninhabited tracts of country; while this river directs its courſe through a cultivated and populous diſtrict, in an equable unbroken ſtream. The country is pictureſque, and its beauties of a milder caſt than uſual in theſe alpine regions. The burghs, or villages, are pleaſantly dotted about the plain, at the diſtance of a mile from each other; each village conſiſts of a cluſter of fifty or a hundred houſes of ſtone, plaſtered and white-waſhed, and in ſuch excellent repair as to appear newly conſtructed. The ſpirit of neatneſs indeed is ſo general in Upper Engadina, that I ſcarcely obſerved one bad houſe through the whole diſtrict, and even the barns are as good as the cottages in many countries.

As I was riding through Bever the clergyman, who was ſmoking his pipe at his door, ſtopped me with a compliment, and invited me to ſee his library; I alighted accordingly and looked over his collection. He ſhewed me ſome Engliſh books, and many in the Romanſh language, particularly the * Bible printed at Coire, which is dedicated to George the Second when Prince of Wales. He alſo obligingly accompanied me a little way; and about half a mile from Bever pointed out a ſingle houſe called Alles Angnes, where the deputies of the two communities of Upper Engadina aſſemble for the purpoſe of deciding, in the laſt reſort, appeals in civil cauſes. A little further he deſired me to obſerve a ſmall ſpring, which falls into the Inn a few paces from its ſource; it is called Fontana Merla, and would not be worthy of notice, did it not ſeparate the two communities of Upper Engadina. Soon afterwards I took leave of the clergyman, mounted my horſe, and proceed to Zutz. I paſſed the Inn ſeveral times over bridges of ſingle arches, which have a very ſtriking appearance; they were conſtructed by ſcholars of the famous Grubenman †, and in the ſame ſtyle of architecture as the bridges of Schaffhauſen and Wettingen, excepting that they are not covered.

Zutz, although not the largeſt, is eſteemed the principal place of Upper Engadina, becauſe it contains the criminal court of juſtice. The Landamman of Sotto Fontana Merla, who always preſides in this court, is choſen every other turn from the family of Planta, eſtabliſhed at Zutz: this peculiar privilege, which gives to that family no inconſiderable influence in the political affairs of this country was formerly granted by a Biſhop of Coire, who was uncle to one of the Plantas. On my arrival at Zutz I waited upon M. Planta, formerly envoy from the republic of the Griſons to that of Venice; he was appointed to that embaſſy in order to renew the ancient league which had been interrupted by the laſt treaty of 1763, between the Empreſs of Germany and the Griſons; and on which occaſion the Venetians were ſo much enraged as to expel the Griſons from their territories. This negociation however, though conducted with great ability, was ineffectual. M. Planta received me with great politeneſs and cordiality, and invited me to ſupper, and, as the evening was not ſet in, he accompanied me to what is called the camp of Druſus, which I was deſirous of examining.

You recollect the campaign which Druſus, the adopted ſon of Auguſtus, and brother of Tiberius, carried on againſt the fierce inhabitants of theſe mountainous countries; and to which Horace, in compliment to his patron, has alluded:

* This Bible is in the dialect of the Grey League.

† See Vol. I. Lett. 2. and 13.

Videre

Videre Rhæti bella ſub Alpibus
Druſum gerentem et Vindelici;

——— *arces*
Alpibus impoſitas tremendas
Dejecit acer plus vice ſimplici.

This campaign of Druſus againſt the Rhetians was attended with great ſucceſs, and he defeated the barbarous inhabitants, before deemed unconquerable, (*indomitoſque Rhætos*) with great ſlaughter. The ſuppoſed remains of his camp conſiſt of ſeveral deep pits, and a mound of earth about thirty feet high and ſixty paces in circumference. Theſe works did not appear to me to be of Roman conſtruction; being probably a rude fortification thrown up during the turbulent times, when the barons of the country were engaged in perpetual acts of hoſtility: a deſire to render them venerable by the remoteneſs of their origin, and the ſplendor of the Roman name, ſeems the only cauſe of their being attributed to Druſus. Having ſatisfied my curioſity I returned to Zutz, and paſſed an agreeable evening with M. Planta.

Scampf, Auguſt 3.

THE little burghs in theſe parts are ſituated at ſuch ſmall diſtances from each other, that my daily journeys are ſcarcely ſo much as a morning's walk, and I am ſo delighted with the country and its inhabitants, that I could willingly take up my abode here for ſome time longer. On my arrival at Scampf I carried a letter of recommendation to M. Perini; who introduced me to M. Aporta, the clergyman of the place, a native of Lower Engadina, of the ancient and illuſtrious family of Aporta. He ſtudied * ſome time at Deprezin in Hungary; but returning to his native country, was ſoon afterwards appointed paſtor of Scampf. His income is ſmall, ſcarcely amounting to £20 † per annum, and yet his living is eſteemed one of the beſt in Engadina; with this moderate revenue he maintains a wife and large family. His chief work, which is a ſufficient proof of his extenſive knowledge and indefatigable induſtry, is the Hiſtory of the Reformation among the Griſons, in two volumes quarto. It is written in Latin, and compiled with great impartiality and exactneſs; the ſtyle is claſſical and perſpicuous. This excellent publication is not merely confined to eccleſiaſtical tranſactions; for as the affairs of religion are intimately blended with political events, the latter make no inconſiderable figure in every Hiſtory of the Reformation. The reader will find in M. Aporta's performance a minute and faithful account of the animoſities between France and Spain, in relation to the Griſons, of the rebellion in the Valteline, of the maſſacre of the Proteſtants, and of the ſubſequent war carried on under the ſemblance of religion. This intereſting narrative comprehends almoſt all the important events in the hiſtory of the Griſons, from the beginning of the reformation to the peace of the Valteline.

I look up with reverence to this learned author, for his unwearied induſtry in completing ſo laborious a work with little encouragement, and under all the diſadvantages which ariſe from a difficulty of procuring books, and ſtraitened circumſtances. All that he ever obtained, except fame, was a preſent of twenty-five guineas, which enabled him to bear his expences to Zurich, for the purpoſe of collecting materials from the manuſcripts in the public library. The work, printed at Coire, at the expence of the typographical ſociety, has never produced any emolument to the author. This reſpectable

* He received his education, I believe, in the Univerſity of Baſle.

† Conſidering the different modes of living, and different value of money, this ſum is perhaps equivalent to about £60 in England.

divine,

divine, beſide a critical knowledge of the learned languages, underſtands and ſpeaks Italian and German, is able to read French, and has ſome acquaintance with the Hungarian and Wallachian tongues. During the little time I paſſed in his company, I had frequent occaſion to be ſurpriſed at his profound erudition and comprehenſive abilities, and I am particularly indebted to him for much exact information concerning the Romanſh tongue, the general purport of which I ſhall tranſmit to you in a future letter *.

Upper Engadina is divided into two communities, called Sotto and Sopra Fontana Merla, from their ſituation above or below that ſpring. They have both the ſame court of criminal juſtice, which is held at Zutz, and conſiſts of the Landamman of Sotto, who is preſident, and ſixteen jurymen, called Trouadors, taken equally from each diſtrict. Juſtice is more equitably adminiſtered in this court than in any other throughout the Griſons, excepting at Coire; a circumſtance which ariſes from the following cauſes. The code of criminal laws was compoſed in 1563 by Juvalta who had been envoy from the republic of the Griſons to Venice, and had there imbibed more enlarged conceptions of juriſprudence, than at that time prevailed among his rude countrymen. This excellent code was drawn up in Latin, and in 1644 was tranſlated into Romanſh. The fines enjoined for criminal offences do not belong to the judges, but the community; the expences of the proceſs are defrayed, and a ſalary is allowed to the judges from the public fund: the judges by theſe means being not ſo much intereſted to convict the priſoner, are not ſo ready to employ the horrid expedient of torture for the purpoſe of enforcing confeſſion.

Another cauſe of the equity obſervable in this court is the mode of electing the judges: they are not, as in many other communities, choſen by the people collectively aſſembled, but by ſixteen deputies, who repreſent the ſeveral diſtricts. By theſe means the election is carried on with more prudence, and with a greater attention to the qualifications of the judges than can be expected amidſt the confuſion of a popular meeting.

The ſame deputies chooſe all the civil magiſtrates by a majority of voices, and finally decide all legiſlative and political queſtions, which have before been ſeparately propoſed to their ſeveral diſtricts. Their conſtituents have the power (which they frequently exerciſe) of peremptorily directing their vote. It is, however, no inconſiderable alleviation of the miſchiefs frequently attendant on governments purely democratical, that the whole body of the populace on no occaſion aſſemble upon one ſpot; but diſcuſs matters in detached parties, and ſend the reſult of their deliberations by their repreſentatives.

Upper Engadina is a very beautiful valley, yet, on account of its elevation, produces nothing but paſture and a ſmall quantity of rye and barley. The winter ſets in early and ends late, during which time ſledges are the ordinary vehicles. The air, even at the preſent ſeaſon, is cold and piercing, and the corn in the midſt of ſummer is occaſionally much damaged by the hoar-froſts; hence the Italian proverb,

Engadina Terra Fina, ſe non foſſe la pruina †.

The diſtrict not yielding ſufficient productions for the ſuſtenance of the inhabitants, many migrate into foreign countries; the gentry in the military line, as is common in Switzerland, others in the capacity of mechanics, tradeſmen, and merchants, their favourite occupation is to keep coffee-houſes or paſtry-cook ſhops in different parts of Italy and France. Generally two perſons enter into partnerſhip to carry on the ſame trade; one remains in his own country, the other attends the buſineſs for a year, when he is relieved by his partner, and returns to his family for the ſame term. Theſe part-

* Letter 90. † Engadina would be a fine country if there was no hoar-froſt.

ners

ners are commonly as faithful as induſtrious; they annually bring conſiderable ſums of money into this diſtrict, which is eſteemed the richeſt among the Griſons.

Many of the inhabitants feed numerous herds of cattle in the ſummer months upon the Upper Alps, and export large quantities of cheeſe and butter; in autumn, when paſture begins to be ſcarce, they ſend great part of the cattle for ſale into the Tyrol. They live much upon ſalted meat, particularly in winter, on account of the dearneſs of fodder. The bread of the country is moſtly browniſh; it is baked in little round cakes, only two or three times in the year, and becomes ſo hard that it is ſometimes broken with the hatchet; it is not an unpleaſant food with cheeſe or butter, which are very common. The principal part of the butter is made on the Alps; it is afterwards melted, put into bottles, and frequently continues good during the whole year. The wine of the Valteline is much eſteemed, and is by no means ſcarce in this country; it bears keeping to a very conſiderable age; I have taſted ſome wine from the caſk of a very fine flavour, about fifty years old, although it grows ſour in the ſpace of three years in the warm climate of the Valteline.

The people are, for the moſt part, remarkably polite and well-bred; they bow to me as I paſs with great civility, and will perform any kind offices in the readieſt and moſt obliging manner. I am indeed no leſs delighted with the politeneſs and hoſpitality of the inhabitants, than with the romantic ſcenery of the country. Although many of the natives ſpend a great portion of their time in foreign parts, they ſeldom loſe their attachment to Engadina; and return with great eagerneſs to their family and friends after their occaſional abſence.

The inhabitants of Upper Engadina are computed at about four thouſand, and out of theſe, four or five hundred, upon an average, earn their livelihood in foreign countries.

LETTER LXXIII.—*Lower Engadina.—Cernetz.—Huldric.—Campel.—Traſp.—Remüs.—Entrance into the Tyrol.—Santa Maria.*

Cernetz, Auguſt 4.

THE valley of Upper Engadina, from Celerina to a few miles beyond Scampf, is nearly level; it is incloſed between two ridges of mountains, which are moſt elevated at Celerina, and gradually diminiſh in height and ruggedneſs. About Zutz and Scampf is the fineſt part of the valley: it there produces ſome rye and barley, and the mountains are clothed with verdure to their very ſummits. Beyond Scampf the plain ends; and the river Inn, which had hitherto winded in a gentle courſe, is contracted into a narrow channel, and falls in continual cataracts. The road aſcends and deſcends along the ſides of the mountains, and the country is thickly overſpread with woods of fir and pines.

I paſſed through ſeveral villages ſimilar to thoſe deſcribed in the preceding letter, and near Brail I croſſed a ſmall bridge thrown over a precipice overlooking a foaming cataract: it is called in the language of the country *Pont Alta*, or High Bridge, and forms the ſeparation between Upper and Lower Engadina. Even if the limits of the two diſtricts had not been thus marked out, the ſudden alteration of the road, for the worſe, would have led me to ſuſpect that I had quitted Upper Engadina. The road from the lake of Siglio to Pont Alta is like our turnpikes in England, and ſufficiently broad to contain two or three carriages abreaſt; no common circumſtance in theſe mountainous regions. It has been lately made, in conſequence of a propoſal from the Houſe of Auſtria, at the late treaty of Milan, to improve the roads leading through the

Pregalia and the two Engadinas, that the merchandiſe to and from Pregalia might be tranſported this way through the Tyrol, inſtead of being carried, as it is at preſent, through Coire.

The Houſe of Auſtria offered to defray the whole expence of this undertaking. The inhabitants of Upper Engadina declining, with a ſpirit of diſintereſtedneſs rarely to be found in democratical ſtates, the offer of indemnification, carried the plan into execution within their own territories; but the intrigues of the citizens of Coire, whoſe intereſt would have ſuffered by the new arrangement, together with an inveterate perſuaſion, that good roads would render the country too acceſſible to the neighbouring powers, prevented the people of Pregalia and Lower Engadina from co-operating in this uſeful project; accordingly that part of this road which runs through their diſtricts remains in its original ſtate.

After croſſing Pont Alta, I paſſed along a wild and almoſt uninhabited tract of foreſt until I reached Cernetz, where I am now comfortably lodged in the houſe of M. Planta. That gentleman is at his government of Morbegno, in the Valteline; but having accidentally met me at Chiavenna, he kindly gave me a letter of recommendation to his uncle, who would not permit me to continue at the inn.

Cernetz is ſituated in a ſmall rich plain, bounded by two ridges of mountains converging at both extremities: it produces wheat, barley, rye, flax, and abundance of rich paſture. I feel an eſſential difference between the climate of this little plain and that of Upper Engadina; it is much warmer, and has all it natural productions much farther advanced towards maturity. Large quantities of wood are felled upon theſe mountains, and floated down the Inn as far as Inſpruck. In this plain the Inn is joined by the large torrent Spælg, that deſcends from the mountains of Bormio; by the ſide of this torrent, and at the extremity of a narrow paſs leading to Bormio and Munſter, I obſerved a ſquare tower, which in 1624 the Marquis de Cæuvres garriſoned with a body of French and Griſon troops, in order to check the Auſtrian army poſted at Munſter. The paſs is ſtill further fortified by a ſtone wall, carried from the foot of an inacceſſible rock to the tower, and from thence to the torrent.

The Marquis de Cæuvres, to whom the guard of this important paſs was committed, was ſon of the Marquis d'Etrées; he was bred up to the church, and created Biſhop of Noyon; but upon the death of his elder brother renounced the eccleſiaſtical line, and embraced the profeſſion of arms. He diſtinguiſhed himſelf in ſeveral campaigns under Henry the Fourth, and was afterwards employed in the reign of Louis the Thirteenth as ambaſſador to Turin and Rome. In 1624 he was appointed ambaſſador extraordinary to the Republic of the Griſons, and commander in chief of an army of French and Swiſs troops, ſent to the aſſiſtance of the Griſons during the war of the Valteline. He penetrated through Coire into Lower Engadina, and ſeized, without delay, this important paſs; by which manœuvre he ſecured the only avenue leading to Bormio, the reduction of which place was followed by the ſubmiſſion of the Valteline. For theſe important ſervices the Marquis, on his return to France, was created Duc d'Etrées, and raiſed to the higheſt honours. He died in 1670, in the hundred and ſecond year of his age.

I employed the greater part of this morning in making extracts from Campel's account of the Griſons, eſteemed the beſt topographical and political hiſtory of this country yet extant. It is written in Latin, has never been printed, and is very rarely met with. I had the good fortune to find a copy in the library of Count Firmian at Milan, who, with that readineſs to oblige which peculiarly diſtinguiſhed his character, permitted me to conſult it. My ſtay at Milan being very ſhort, and employed in other reſearches, I had

had not made ſo good an uſe of this indulgence as I could have wiſhed; and as I have now found the ſame work in M. Planta's library, I embrace this opportunity of peruſing the moſt intereſting parts, which has given me great inſight into the geography, hiſtory, and government of this country.

Huldric Campel, the author of this valuable work, was born in the beginning of the ſixteenth century at Suſs, in Lower Engadina, and made an uncommon proficiency in every ſpecies of literature. He was one of the earlieſt reformers in this country, and became by his active zeal, as well as by his extenſive erudition, the chief inſtrument in ſpreading the reformation through this diſtrict. An event of ſmall conſequence, which happened in his family, gave riſe to the ſudden and wide diſſemination of the new doctrines, and ended in the abolition of the Roman Catholic religion.

Being abſent, in 1537, upon the proſecution of his ſtudies, his wife was delivered of a daughter, who ſeemed upon the point of expiring. Gaſpar Campel, father of Huldric, a man ſtrongly attached to the reformed doctrines, refuſed to have the child chriſtened by the popiſh prieſt of the pariſh, and would not ſuffer even the midwives to ſprinkle it according to the cuſtom of the Romiſh church, with holy water; and, as there was no reformed miniſter at hand, performed the ceremony of baptiſm himſelf. The Roman Catholics of Suſs, in abhorrence of this act, aſſembled in a tumultuous manner, and attacked Gaſpar with ſuch fury, that he narrowly eſcaped aſſaſſination. His enemies then brought an accuſation againſt him before the diet, which at firſt referred the cauſe to arbitration; but no ſatisfactory deciſion being obtained, a public conference was ordered to be held in the church of Suſs, before deputies from the ſeveral communities, upon the following queſtion, "Whether, if a child is born and likely to die before a prieſt can be ſent for, the baptiſm performed by a layman was preferable to that by midwives?"

This ridiculous inquiry led to diſcuſſions of great moment; the reformed miniſters refuſed to acknowledge any authority but the Holy Scriptures; while the Catholics conſidered the writings of the fathers and decrees of the church as infallible. Each party thus regarding every point through a different medium, could not be induced to admit the arguments of its antagoniſt, and the diſpute laſted ſeven days with little proſpect of a ſatisfactory concluſion. Fortunately, however, an accommodation was ſummarily adjuſted by the moderation of the deputies; they decided that, in caſes of extreme neceſſity, where no prieſt was preſent, either a layman or the midwives might baptiſe, and that the layman was preferable to the midwife: but what was of the greateſt conſequence, they decreed that, in regard to the other controverted points of faith debated in the courſe of the argument, every perſon might ſafely hold that doctrine, which from full conviction he was perſuaded to be the word of God.

This conference was productive of the moſt beneficial effects; for the people, who flocked thither in great numbers, were taught to conſider the Holy Scriptures as the only authority in controverted queſtions. The tendency of this maxim is obvious; in fact, it produced ſuch rapid effects that, within the ſpace of twenty years, the Reformation was completely eſtabliſhed throughout * Engadina.

To return to Huldric Campel; he not only approved his father's conduct in the affair of his daughter's baptiſm, but became a zealous proſelyte to the new doctrines. Having entered into holy orders, he undertook the care of a reformed church in the valley of Pretigau, where he was indefatigable in the performance of his duty, and the propagation of the Proteſtant religion. In 1550 he was drawn to Suſs by the friends of the Reformation, as a perſon the moſt qualified to combat the Roman Catholic church.

* Excepting the ſmall village of Samun.

His labours were attended with such success, that, a short time after his appearance in his native place, mass was abolished, and the Reformation publicly adopted. Nor was Süs the sole theatre of his exertions; at Cernetz, and several other places, the persuasion of his eloquence, and the force of his arguments, gained numerous converts.

He passed the decline of his life at Schlins, where he was pastor, and persevered to the last period of his existence in disseminating and defending the doctrine of the reformed churches, as ably with his eloquence as he recommended them by his example. Amidst the occupation of religious duties, he found leisure to continue his history of the Grisons to 1580. He died the following * year at Schlins in an extreme old age, leaving a name highly respectable in the religious and literary annals of this country.

The history of Campel consists of three volumes. The first dwells chiefly on the topography of the Grisons, and describes the different districts and towns; it likewise delineates the nature of the several governments, and the various forms of civil and criminal jurisprudence in the petty republics into which this country is subdivided. The second volume comprises the history of Rhætia, from the earliest period to the Suabian war in 1499, under the emperor Maximilian I; the materials are chiefly drawn from Tschudi, Stumpf, and other Swiss historians. The third volume, in which the history is brought down to his own times, is the most interesting and authentic. Campel having submitted his work to the examination and correction of Bullinger and Simler, presented, in 1577, a copy to the diet of the three leagues, and received public thanks. But as his own fortune was inadequate to the expences of publication, and as no bookseller would undertake to print so voluminous a work, it has never been given to the world.

Remus, August 4.

The road from Cernetz to Scuol is a continual ascent and descent, and so rocky and bad, that I employed above eight hours in riding only twenty miles. The small plain of Cernetz soon ends, and is succeeded by a rude assemblage of rocks and forests. Süs is situated in a narrow pass between the river Inn and a ridge of rocks a little beneath the ruins of an old castle: close to it is a small fertile plain, which agreeably diversified the wildness of the rocks and forests.

The road to Ardetz follows the course of the Inn, which murmurs below in a deep narrow channel, heard but not seen. From Ardetz (over which hangs, upon a lofty rock, a ruined castle called Steinberg) I descended a very steep craggy path to the Inn, which I crossed, and mounted a rapid ascent, leaving on my right hand the valley of Scharla, in which are silver mines belonging to the House of Austria, formerly rich and yielding a considerable advantage, but now exhausted. I passed through the straggling village of Trasp, close to a castle of the same name, situated upon the highest point of a perpendicular rock. Count Dietrichstein, as lord of the castle, is a prince of the German empire; it was given to his family by the Emperor Leopold, on condition that its possessor should always vote in the diet of the empire for the House of Austria; the formality of a garrison is maintained by a single Austrian soldier. From Trasp I again descended to the river, crossed it and ascended it to Scuol, where I arrived late, and set off early this morning.

From Scuol to Remus the mountains on the left slope gradually, and are richly cultivated; producing great quantities of wheat, rye, barley, flax, and hemp; the trees are chiefly pines, firs, and small birch, intermixed with underwood of nut-trees and

* Some authors place his death in 1582.

wild

wild roſes. The corn fields are raiſed in gradations (if I may ſo expreſs myſelf) along the ſides of the hills, like the vineyards in the Pays de Vaud. The ridges of the mountains on the right beyond the Inn are ſteep, and in many places perpendicular, with little appearance of vegetation.

It is now harveſt time; and I have obſerved ſeveral clergymen employed in reaping the corn. The clergy are very poor in Lower Engadina, and are more numerous than in any other part of the Griſons. The income of no benefice amounts to more than £20 per annum; that of the inferior cures to little more than £8, and this ſcanty pittance is ſometimes ſubdivided among two or three clergymen, or as many as happen to be unprovided for in the ſame pariſh.

I ſtopped at Remus to bait my horſes. Near it is a ruined caſtle which once belonged to the Biſhop of Coire, and was given by one of the former prelates to the Plantas of Zutz; in right of which donation they claim the privilege of adminiſtering the oath to the Landamman of Sotta Taſna. The only remains of this caſtle are two ſquare towers, in one of which is a miſerable apartment, where M. Planta gives an annual dinner to the Landamman.

Lower Engadina is divided into three communities, which ſend three deputies to the general diet. The firſt is compoſed of the pariſhes of Cernetz, Suſs, Lavin, Guarda, and Ardetz; the ſecond compriſes Vettan, Scuol, and Sent, and the third contains Remus, Schlins, and Samun. The two former communities make one High Juriſdiction; and the third forms another with Bevio, Valmorara, and Avers.

In civil cauſes there are two ſeparate courts of juſtice, one for that part of the country which lies to the north, the other for the diſtrict to the ſouth of the torrent Taſna, from which the two parts are called Sopra and Sotto Taſna: from each of theſe courts there lies an appeal, in the laſt reſort, to the civil tribunal of Sotto Fontana Merla, in Upper Engadina, or to the neighbouring community of the valley of Munſter. In criminal cauſes there are likewiſe two diſtinct courts, but without appeal; one for the tract to the north of the mountin Falon, another for the region to the ſouth: according to this diviſion the two parts are denominated Sopra and Sotto Montfalon.

By this complicated arrangement Vettan is connected with Scuol and Sent in political concerns, in civil affairs with Scuol, Sent, Remus, Schlins, and Samun, in criminal cauſes with Cernetz, and the other towns of the firſt community. This intermixture of various intereſts creates ſuch an intricacy in the election of deputies, magiſtrates, judges, both civil and criminal, as would be unintereſting for me to detail, or for you to read.

One circumſtance, however, cannot fail to ſtrike the moſt inattentive inquirer; that although the mode of electing the judges is nearly the ſame with that of Upper Engadina, yet juſtice is by no means ſo impartially adminiſtered. I cannot forbear aſcribing this material difference, in an affair of ſuch importance, to the different condition of the two people; the inhabitants of the Upper Engadina, being more enlightened and affluent than their neighbours, are leſs open to the influence of illiberal prejudices and petty corruption.

Party runs very high both in Upper and Lower Engadina: there are ſome conſiderable families in theſe diſtricts, of which the principle are thoſe of Deſalis and Planta, both ſubdivided into numerous collateral branches. The hiſtory of this country is filled with the diſputes and ſtruggles between theſe rival houſes, and preſents in many periods little more than an uniform picture of domeſtic feuds. The two parties are diſtinguiſhed by the appellations of *Scarbonada*, black, and *Alba*, white; the former devoted to the Plantas, the latter to the Deſaliſes. At the time of elections for depu-

ties and magiſtrates the inhabitants of Lower Engadina ſeldom abſtain from blows, which not unfrequently terminate in bloodſhed.

I have more than once had occaſion to mention the ſuperiority of politeneſs which diſtinguiſhes the inhabitants of Upper Engadina from thoſe of the lower diſtrict. This pre-eminence probably ariſes from the conſtant emigration of the former into other countries, and their intercourſe with foreigners. I find alſo a great difference in the comforts of life in the two diſtricts: although Lower Engadina produces neceſſaries abundantly ſufficient for interior conſumption, yet the inhabitants are leſs induſtrious, and conſequently poorer. In Upper Engadina I was always able to procure at the commoneſt inns freſh meat, good oil, and excellent wine none of which I could obtain in the lower diſtrict. The villages are leſs commodious, and the houſes of the peaſants are alſo far inferior in cleanlineſs, neatneſs and convenience. This difference probably proceeds, in a certain degree, from the nature of the country: Upper Engadina, yielding but few productions, the inhabitants are obliged to ſeek from without ſome means of ſubſiſtence, and induſtry once excited brings with it its uſual companion, opulence; on the contrary, the ſoil of lower Engadina, fertile in all the fruits of the earth, lays the inhabitants under no neceſſity of extraordinary exertion, and therefore has recourſe to foreign trade.

Santa Maria, Auguſt 5.

In my way from Remus to St. Martin's bridge, being overtaken by a violent ſtorm of rain, I took ſhelter in a cottage, and was cheerfully received by a well-looking old woman: my horſe was put under a ſhed, and myſelf ſafely houſed from the pelting of the ſhower. I found the rooms perfectly neat and clean, with much better furniture and accommodations than I expected from the external appearance of the cottage. The old woman talked, beſides Romanſh, German and Italian, and the latter remarkably well. The ſtorm continuing two hours without intermiſſion, I held a long converſation with her, and was greatly pleaſed with the polite and ready manner with which ſhe expreſſed herſelf upon different topics. Upon taking leave I made ſeveral apologies for having dirtied her houſe, thanked her for her kind reception, and endeavouring to ſlip a piece of money into her hand, was ſurpriſed at her declining to accept it.

All theſe circumſtances exciting my curioſity to obtain ſome intelligence concerning this elderly perſon, I collected the following account:—She is a native of Lower Engadina, of a good family, and formerly poſſeſſed a tolerable fortune; ſhe married when very young, a nobleman of the firſt family of Milan, who came into Engadina, renounced the Roman Catholic, and embraced the Proteſtant religion. They lived for many years in the greateſt harmony, till having diſſipated almoſt all her fortune, he one day took leave of her, with a promiſe of returning in a ſhort time. From that moment ſhe never ſaw nor heard from him, and was afterwards informed that he was gone to Italy, and had turned monk; upon receiving this information, his wife collected the ſcanty remains of her fortune, and retired to the ſpot where I found her.

Towards the extremity of Lower Engadina I croſſed the Inn which ſtruggles through a very narrow channel, between two ridges of high and rugged rocks, over St. Martin's bridge, into the Tyrol. I here took a farewell of the Inn, which I had accompanied from its ſource. At St. Martin's bridge it forms the ſeparation of Engadina and the Tyrol; on receiving the torrent Schargenbach, it quits the territory of the Griſons, and paſſing through the Tyrol and the Electorate of Bavaria, joins the Danube at Paſſau with ſo large a body of water, as to equal, if not ſurpaſs, the celebrated river in which it loſes its name; hence Scheutzer has laboured to prove, that the Danube may be ſaid rather to riſe in the Rhetian Alps than in the mountains of Suabia.

In the village of St. Martin Romanſh is ſpoken; on the other ſide of the bridge German is the common language. From the ſteep banks of the Inn I aſcended a high mountain, along an excellent road, lately formed at the expence of the emperor, to facilitate the communication between Milan and Tyrol. On the top I had a fine view of the Inn and Lower Engadina, and then deſcended to Nauders, where I dined upon a cold fowl, with which Mr. Planta had kindly ſupplied my ſervant, and without which precaution I ſhould have made but a ſcanty meal.

From Nauders I traverſed a ſmall pleaſant valley, bounded on the left by a ridge of mountains which ſeparate the Tyrol from Engadina; the valley is about a quarter of a mile broad, and almoſt level; it is covered with rich paſture, and watered by a lively torrent that falls into the Inn. At the end of this valley I gently aſcended to a lake, one of the firſt ſources of the Adige; beyond this is another lake, and further on a third; the banks of theſe lakes are prettily ſkirted with villages, at one of which I paſſed the night.

Having a long day's journey from thence to Bormio, I ſet out at five this morning, and proceeded by the ſide of the torrent which flows from the lakes and forms the Adige. The country is agreeable, and in high cultivation, eſpecially where it opens into a rich and extenſive view beyond Mals, which town I paſſed at a little diſtance on my left hand, and turned ſhort into the road that leads to the valley of Munſter. At the bottom of the firſt aſcent I went throug Laitch, which is ſubject in ſpiritual affairs to the biſhop of Coire, in temporal to the Houſe of Auſtria, and mounted along a rich valley riſing to Santa Maria. Tauven is the laſt village in the Tyrol where the inhabitants ſpeak German; a little beyond I paſſed the barrier, and again entered the territory of the Griſons, where Romanſh is the common tongue.

Paſſing through Munſter, which derives its name * from a monaſtery for women ſuppoſed to have been founded by Charlemagne, I proceeded to Santa Maria, from whence I am now writing.

The valley of Munſter contains Santa Maria, Munſter, Valdera, Cierſs and ſeveral other villages, which form a community in the league of God's Houſe. Formerly the Biſhop of Coire had conſiderable influence in the government of this valley; juſtice was adminiſtered in his name, and he received the amercements for criminal offences; but having violent diſputes with the inhabitants, he ſold theſe rights in 1727 to the Emperor Charles the Sixth. The republic of the Griſons, however, objecting to this transfer of immunities, which they conſidered as unalienable, the biſhop was obliged to repurchaſe and diſpoſe of them to the inhabitants, who are now perfectly independent. The people are divided into Catholics and Proteſtants; the former inhabiting the town of Munſter, with its immediate dependencies, the others the remainder of the valley; the magiſtrates and judges are choſen equally from both parties, who live together in tolerable harmony. The common language is the Romanſh, the ſame as ſpoken in Lower Engadina, though not quite ſo pure; as, on account of its proximity to and connection with the Tyrol, it is blended with the German.

LETTER LXXIV.—*Paſſage of Mount Bralio.—County and Town of Bormio.*

Bormio, Auguſt 7.

THE paſſage from Santa Maria to this place was very tedious, and would have been attended with ſome danger had I been detained a day later; as the great quantity of

* Monaſterium.

rain,

rain, which now pours down without intermiſſion, would have rendered the Alpine paths extremely ſlippery. I continued to aſcend two hours from Santa Maria to the top of Mount Bralio, which ſeparates the valley of Munſter from the county of Bormio. This body of Alps is ſuppoſed to be the ſame which Tacitus mentions under the name of *Juga Rhætica**. I aſcended the whole way by the ſide of the torrent Ramo, the ſame which flows by Laitch, and falls into the Adige † below Mals; I traced it to its ſource, where it ruſhes from a glacier, amidſt an encloſure of rocks. A few paces further, near the ſummit of the Bralio, another torrent falls from the ſame glacier in a contrary direction, and forms the firſt ſource of the Adda.

From this point a deſcent continues, with little interruption, to Bormio. The tops of theſe mountains produce no wood, but yield excellent paſture; they were covered with cattle. The moſt elevated parts are of granite, but not ſo fine grained as that which I obſerved upon the St. Gothard, and ſome of the other Swiſs Alps. I then went down a very narrow rugged path, and in an hour entered a ſmall plain in the county of Bormio, about a mile in length, in the midſt of which is a ſingle houſe, termed an inn, the firſt habitation I met with ſince I quitted the valley of Munſter. I found no one within but a woman and two children, who ſpoke a corrupt Italian: the woman was greatly affronted on my enquiring if ſhe talked Romanſh; being a Roman Catholic, ſhe ſeemed to conſider it as a kind of hereſy to underſtand that language.

I followed the courſe of the Adda which flows through the plain; at firſt a ſmall torrent, but gradually increaſing by a continued acceſſion of water from the neighbouring mountains. At the end of this ſmall plain the deſcent recommences, and the track from thence to Bormio is as craggy as the higheſt part of Switzerland. Since I have travelled in the country of the Griſons, I have not yet met with ſuch aſtoniſhing ſcenes of wildneſs, horror, and majeſty, as occurred in this day's journey. Deſcription generally falls in repreſenting the moſt ordinary exhibitions of nature; how inadequate then muſt it be to the ſingular combination of ſublime objects, which I ſhall now attempt to delineate?

I had no ſooner quitted the ſmall plain than I entered ſuddenly into the moſt barren and deſolate region; on my right hand huge piles of miſhapen Alps, on my left a large maſs of ice and ſnow. Cloſe to the path the Adda foams from precipice to precipice in broken cataracts; lower down it ſhoots over a ſucceſſion of natural ſteps, which ſeem as if hewn by art; at the diſtance of about a mile, it is contracted into a narrow channel, through which it labours with inceſſant fury. Over this tremendous gulph is a ſlight wooden bridge, partly ſupported upon a detached fragment of rock, and partly ſuſpended upon the ſides of the oppoſite mountains; as I paſſed over, it tottered with my weight. I then continued upon the edge of a deep abyſs, the Adda roaring beneath though no where viſible, ſuggeſting to my imagination cataracts more ſtupendous than any I had hitherto ſeen. Its channel is cut perpendicularly in the rock which has evidently been hollowed to the depth of ſome hundred feet by the attrition of the waters.

I now arrived at a barren ſpot, where the vale was entirely cloſed by an impaſſable mountan: a ſtream burſts from a ſmall opening in the rock, and then expanding as it falls, forms a conſiderable torrent, foaming amidſt vaſt fragments of ſtone. I turned ſuddenly to the left, by an opening through which the Adda ſeems to have forced a paſſage, and diſcovered ſome fertile fields lying upon the ſide of a diſtant mountain, which beautifully contraſted with the wild and uncultivated ſcenes I had juſt quitted: a

* Hiſt. lib. i.

† Or rather two torrents form by their junction the Adige.

few

few paces further was the proſpect of a rich plain extending to Bormio, the Adda flowing in a milder ſtream, which a moment before roared underneath our feet, over broken precipices. In half an hour I reached the baths of St. Martin, in the valley of Premaglia; they are formed by ſeveral hot ſprings which riſe near Molina, and are much frequented at this ſeaſon of the year; they are of the ſame nature with thoſe of Bath, but did not appear ſo hot.

From thence I deſcended into the plain, which produces ſome corn, and yields excellent paſture, and in a ſhort time arrived at Bormio. Every thing now wears an Italian look: the villages are very inferior to thoſe in the Griſons; the houſes are plaſtered, and have a dirty appearance; and it was no bad remark of my ſervant, that the villages looked as if the inhabitants were moſtly dead, and the place deſerted.

This road over the Bralio, although ſo indifferent, was formerly the principal paſſage for the merchandize ſent from the Tyrol, through the Valteline, into the Milaneſe: at preſent it is much leſs frequented.

The county of Bormio, ſubject to the Griſons, lies at the foot and in the midſt of the Rhetian Alps, and borders upon Engadina, the valley of Munſter, the Valteline, Tyrol, Trent, and the Venetian territories. It is entirely encloſed within the mountains except a narrow opening, which connects it with the Valteline; the other acceſſes lie acroſs the rugged Alps, and are ſimilar to the paſſage over the Bralio; in winter they are frequently impaſſable.

This country, once a part of the Milaneſe, became ſubject to the Griſons in 1512: the concurrence of extraordinary circumſtances, which occaſioned this revolution, will be related in the ſubſequent letter, upon the hiſtory of the Valteline; for, as the Valteline came under the dominion of the Griſons at the ſame period, and from the ſame cauſes, the two hiſtories are ſo intimately blended, that they cannot be ſeparated.

The county is divided into five diſtricts. 1. Bormio, which compriſes the capital, and ſeveral dependent villages. 2. The valley of Furba. 3. The valley of Pedinoſa. 4. The valley of Cepino. 5. The valley of Luvino. The inhabitants of the Luvino poſſeſs ſeveral privileges, particularly the power of judging civil cauſes within a certain value; they do not, however, appoint any of the magiſtrates, who are all choſen from the four diſtricts.

The country of Bormio enjoys ample immunities, ſome of which are not extended to the Valteline, or Chiavenna; and the inhabitants are exempt from the oppreſſions ſo wantonly exerciſed by the Griſon governors in the other ſubject countries. 1. The inhabitants pay a fixed contribution, which is very moderate, and cannot be increaſed. 2. They collect and enjoy their own duties upon exports and imports, which ſecures them from injudicious and oppreſſive taxes. 3. The fines for criminal offences belong to the community; a circumſtance very friendly to the adminiſtration of juſtice: for no part being aſſigned to the governor, as is the caſe in the other ſubject provinces, he is not intereſted to convict criminals. 4. But the principal privilege which diſtinguiſhes this country from the Valteline, is the freedom of its government, and the limitation of the podeſta's authority.

Bormio, like the other ſubject countries, is governed by a ſupreme magiſtrate called *Podeſtà*, who is ſent from the Griſons, and continues two years in office: his authority is exceedingly circumſcribed, and he enjoys ſcarcely any power, but with the concurrence of the councils. He preſides in theſe councils without giving a vote, except in caſe of equality; he has neither the power of arreſting a criminal, nor of pardoning or leſſening the puniſhment; he receives a yearly ſtipend from the country of about £80, ariſing

partly from a payment in money, partly from an allowance in rye, and partly from the coſts of ſuit in civil and criminal cauſes. But the reſtrictions laid on his authority will beſt appear from a ſhort ſketch of the eſtabliſhed government.

The ſupreme authority reſides in the podeſta, and councils, conſiſting of a civil and criminal tribunal, whoſe members are annually choſen by the people.

The criminal court, or the council of Sixteen, who are changed every four months, is compoſed of two regents, the treaſurer, the notary, and ſixteen counſellers, ten of whom are taken from the town, and two from each of the vallies Furba, Pedinoſo, and Cepino; of theſe members only the ſixteen counſellers have any vote. At the requeſt of the two regents, this council is convened by the podeſta. In order to arreſt a criminal, the whole council ought to aſſemble, or at leaſt ſeven of the members; but in any caſe of importance, the podeſta and two regents may give an order of arreſt; this, however, being contrary to law, muſt be referred to the firſt meeting of the council, which, if ſatisfied, decrees in the words of their code, *Male captus; bene detentus;* the arreſt was illegal, but expedient. The proceſs is formed, and the priſoner examined by the podeſta and two regents, who lay the proceedings before the council. Should the criminal be convicted, and will not confeſs his crime, the majority of the council decide whether the proofs are ſtrong enough to juſtify torture: if that horrid expedient ſhould be deemed requiſite, it muſt be applied in the preſence of the podeſta, the two regents, the treaſurer, and notary.

The fines are paid to the community, which, when the priſoner is inſolvent, defrays the expence of the proceſs. If the proofs againſt the priſoner appear inſufficient for his conviction, the podeſta and counſellers receive nothing for their attendance. This regulation, which was deſigned to prevent frivolous proſecutions, is productive of this ill effect, that it induces the judges to ſtrain the ſlighteſt circumſtances into proofs of guilt, and not unfrequently occaſions the infliction of torture *.

The civil tribunal conſiſts of twelve members, taken from the town of Bormio, who determine all civil cauſes in the firſt inſtance: from their deciſion lies an appeal to the ſyndicate of the Griſons.

The members of theſe councils are choſen annually by the aſſembly of the people, conſiſting of, 1. All thoſe who have been magiſtrates; 2. Of ſixty perſons from the town, nominated by the two chiefs of the people; 3. Of ſixty perſons choſen equally by the three vallies; 4. Of three deputies from the valley of Luvino. All theſe repreſentatives aſſemble on the 15th of June, in the town hall of Bormio: the election is carried on in the moſt democratical manner, upon a plan calculated to prevent all influence, which cannot however be entirely excluded by the moſt complicated mode of election ever invented. Without enlarging upon the form of voting by ballot uſed at Bormio, I ſhall, on account of its ſingularity, only briefly deſcribe the ceremony of chooſing the two regents. After the nomination of the counſellors, the regent laſt in office points to ſome perſon in the aſſembly; and at the ſame inſtant the treaſurer mentions ſome number, as for inſtance, ten, fifteen, &c. This number is immediately counted by the regent, beginning from the perſon to whom he is pointing: the laſt ſix of the perſons counted retire into a ſeparate room, and chuſe ſix members of the aſſembly, namely, three from the diſtrict of Bormio, and three from the valleys, who appoint ſix candidates. The names being thrown into ſix bags, and balloted for, and the two, who

* Little more is wanting to the reformation of criminal juriſprudence in Bormio, than to render the examinations public, to pay the judges for their attendance, whether the priſoner is innocent or guilty, and to aboliſh torture.

have the greateſt number of ballots, are regents. They remain in office only four months, in order to prevent the abuſe of their power, which is very great.

The expences of government are regulated with extreme jealouſy, and the accounts are annually ſubmitted to the inſpection of each diſtrict: when the regents retire from office, the treaſurer delivers a ſummary of the expences and receipts incurred during their adminiſtration, which is read to the council of Sixteen, and cannot paſs without their approbation. In October the council elects three examiners, two of whom are always taken from the inhabitants of the town, and one reciprocally from each of the three valleys. Theſe examiners make a report, which is laid before a deputation from the town and the valleys on the 3d of May, and five copies are diſtributed to the ſeveral deputies, for the inſpection of their reſpective conſtituents; laſtly the report is read before the aſſembly of repreſentatives, who meet for the election of the magiſtrates, when it is either finally approved or rejected.

The revenue of the county, however trifling, is nearly adequate to the current expences: it ariſes in the following manner:

	£.	s.	d.
Duty upon merchandiſe, which this year amounted to	29	5	0
Rent of the paſture upon the Alps of Frederiga, Gallo, and Braglio,	30	13	4
For liberty of cutting wood,	6	13	4
Profits ariſing from the ſale of the corn granted by the government of Milan,	25	4	0
Rent of the baths,	13	6	8
Fines, upon an average,	14	0	0
Tythes of corn produced,	103	12	0
	222	14	4

The following is a Table of the average Expences.

	£.	s.	d.
For making and repairing roads and bridges,	83	6	8
Salary of the magiſtrates,	71	8	0
Salary of the podeſta and ſyndicate,	57	7	6
	212	2	2

In this calculation a few occaſional expences are omitted, which render the general outgoings greater than the receipts; the overplus is ſupplied by equal aſſeſſments. For the purpoſe of aſſeſſing, there is a perpetual committee, conſiſting of twelve members choſen from the town, and two from each valley, which is convoked by the regents. The ſum required being laid before them they fix the quota according to a calculation of property.

The mountainous parts of this country produce only paſturage and wood; the lower diſtrict about Bormio yields corn, but not ſufficient for domeſtic conſumption. The inhabitants export cattle, a ſmall quantity of cheeſe, and iron, obtained from the mine of Freli, in the valley of Pedinoſo, worked at the expence, and for the profit of a private perſon, who pays to the community a ſmall annual rent. Wine is imported from the Valteline, corn from the Tyrol, corn and rice from Milan, linen from Bergamo and Appenzel, and cloth from Germany.

The Roman Catholic is the eſtabliſhed religion, and the exerciſe of every other worſhip is prohibited: even the podeſta himſelf, if a proteſtant, is not entitled to any indulgence in this particular *. Spiritual affairs are under the juriſdiction of the biſhop of Coire, who has a vicar's court at Bormio, in which all eccleſiaſtical cauſes are tried.

The prieſts have peculiar privileges, which are even extended to thoſe who wear a clerical dreſs. Although many abuſes reſult from thoſe exorbitant immunities, yet, from the nature of the government, they are more reſtrained here than in the Valteline. Moſt of the peaſants poſſeſs a ſmall portion of land, and in conſequence of the freedom of the government, are much happier than the people of the Valteline and Chiavenna.

The town of Bormio is not unpleaſantly ſituated, at the foot of the mountains, cloſe to the torrent Fredolfo, which falls at a ſmall diſtance into the Adda. It contains about a thouſand inhabitants, but has a deſolate appearance; the houſes are of ſtone plaſtered; a few make a tolerable figure amidſt many with paper windows; ſeveral, like the Italian cottages, have only wooden window ſhutters. This cuſtom may not be uncomfortable in the mild climate of Italy, but cannot be agreeable in a country, ſubject to ſudden changes of weather, and occaſionally cold even in the midſt of ſummer, when the bleak winds blow keenly from the Alps.

The landlord of the inn in which I am lodged is one of the regents, and a man of great conſequence. I ſit down to table with him, the podeſta, and his wife. The podeſta has been lately appointed to this government, and I can collect from the converſation which has paſſed, that he is perfectly ignorant of the laws and conſtitution of this country; in all my queſtions he refers me to the landlord, who is thoroughly acquainted with the theory and practice of the courts of juſtice, and well verſed in the moſt minute circumſtances, relative to the adminiſtration of affairs.

It has rained all day without intermiſſion, and the ſhowers in theſe Alpine countries pour down with ſuch uncommon violence, that I eſteem myſelf very fortunate in being well ſheltered. The bad weather, however, did not prevent me from ſeeing every thing which is worthy of attention in Bormio, and in paying ſeveral viſits to the principal families of the town, who conſider an Engliſhman in this country as a kind of phænomenon, and ſhewed me every attention and civility in their power.

The Palazzo, or town-houſe, contains a ſuit of wretched rooms for the reſidence of the podeſta, a chamber for the courts of judicature, and an apartment where the repreſentatives of the people aſſemble. In one of the rooms is an engine of torture, which, in defiance of common ſenſe, as well as humanity, is ſtill uſed in theſe countries to force confeſſion.

Being deſirous of ſeeing the archives, I found it occaſioned more trouble than I at firſt apprehended. The door of the apartment, in which they are depoſited, having ſeveral locks, it was neceſſary for all the magiſtrates, who are entruſted with the different keys, to be preſent at the ſame time: no objection, however, was made to my admiſſion, and all parties readily aſſembled upon this occaſion. The archives, which are in the greateſt diſorder, contain many records relating to the hiſtory and conſtitution of Bormio, the criminal and civil ſtatutes, and ſeveral charters from the ſovereigns of Milan, confirming original privileges and adding others. The earlieſt of theſe acts is dated 1378, and ſigned by John Galeazzo Viſconti.

* For the cauſes of this prohibition, which takes place in all the provinces ſubject to the Griſons, ſee the next letter.

The moſt important of the papers is the charter by which the Griſons confirm, in the moſt ample manner, the immunities granted to this country by the Dukes of Milan; it was paſſed in the diet of Ilantz, under Paul Biſhop of Coire, in 1513, the year ſubſequent to that in which the Griſons annexed Bormio to their dominions. Many circumſtances have concurred to deter the Griſons from infringing this charter: the two principal are, the ſituation of Bormio, and the ſpirit of freedom which diſtinguiſhes the inhabitants. By its ſituation upon the confines of the Tyrol, the people, in caſe of the leaſt diſcontent, would receive encouragement and aſſiſtance from the Houſe of Auſtria. This local advantage procured them, while under the government of Milan, much better treatment than was experienced by their neighbours in the Valteline, and a ſimilar reaſon ſtill continues to operate upon the conduct of the Griſons.

The ſpirit of freedom which pervades the conſtitution, has no leſs materially contributed to the ſecurity of their privileges: theſe people have always watched with a jealous eye the ſlighteſt advances of encroachment, and never failed to remonſtrate with great unanimity and reſolution, whenever the podeſta has diſcovered the leaſt inclination to exceed the bounds of his authority. Hence the Griſons have uniformly acted towards them with great moderation, and paid the readieſt attention to their repreſentations and remonſtrances *.

LETTER LXXV.—*Tirano.—Sketch of the Hiſtory of the Valteline.*

Tirano.

I QUITTED Bormio this morning about ten. The torrents are conſiderably ſwelled with the late rains, and the ſides of the neighbouring mountains are ſprinkled with yeſterday's ſnow. I paſſed along the narrow valley of Cepino, through ſeveral wretched villages, among which not the leaſt wretched is Cepino itſelf, conſiſting of a few ſtraggling cottages, many of which are in a ruinous ſtate. Having croſſed the Adda, and continued on the left bank of the torrent, which daſhes with great violence through a rocky country, in three hours I arrived at a Paſs called La Serra, where almoſt the whole ſpace between the impending rocks is occupied by the Adda.

The path runs under the gateway of an ancient tower, and leads from the county of Bormio into the Valteline. At Sondalo, which ſtands on the banks of the river upon an eminence, under a richly cultivated mountain, the valley widens, and becomes more and more fertile; in ſome places it is about a mile, in others ſcarcely a hundred yards in breadth. Near Tirano it exhibits an appearance of extraordinary fertility; the left ridge of mountains is chiefly overſpread with hanging groves of cheſnut-trees, intermixed with a few vines, above them are meadows and foreſts of fir. The ridge facing the ſouth is richly covered with vines, which reach almoſt to the ſummit, ſtudded occaſionally with cluſters of large trees; on both ſides churches and houſes half concealed by the foliage enliven the proſpect. Below runs the Adda; the plain on each ſide of its banks produces abundance of corn and paſture, mulberries, walnuts, and other fruit-trees, and vines carried over the corn and paſture in beautiful feſtoons from tree to tree.

Tirano is the capital of the Upper Terzero, and the reſidence of the podeſta. Although the town contains ſeveral handſome buildings, yet, on account of the narrowneſs of the ſtreets, and number of ruinous houſes, the general appearance is deſolate. The Adda divides it into two parts, which are connected by a ſtone bridge of a ſingle

* In the new diviſion of Switzerland the county of Bormio was, with the Valteline and Chiavenna, annexed to the Ciſalpine republic.

arch,

arch. I obſerved the remains of ſtone walls which formerly ſurrounded this place; theſe walls, together with an adjoining fortreſs, were built by Ludovico Sforza; but diſmantled by the Griſons when they acquired poſſeſſion of the Valteline.

Tirano carries on but little trade, except during the time of the fair. The ſtaple commerce of the town conſiſts in the exportation of wine and ſilk; the wine is ſent in large quantities into the country of the Griſons, to Bormio, and into the territories of Venice; the ſilk which is drawn from this diſtrict of the Valteline is not of the beſt quality, nor very abundant; part is forwarded to Venice, and the remainder through Chiavenna to Germany.

About half a mile from the town, on the other ſide of the Adda, is the church of the Madona, or the Virgin Mary, much viſited by Catholic pilgrims; it is a large handſome building, conſtructed with marble and ſtone ſtuccoed. Part of the church is ancient, for I obſerved a date of 1206; and the carved ornaments are groteſque, but by no means badly finiſhed. The modern building is in an elegant ſtyle of architecture; the principal entrance is formed by two Corinthian pillars ornamented with foliage and feſtoons of flowers, while the pilaſters are neatly adorned with *baſſo relievos*, in the ſtyle of the antique. The æra of the workmanſhip, as I collected from an inſcription over the door, was 1533.

In the large area before the church is held, in the month of October, the fair of Tirano, remarkable for the number of cattle which are brought for ſale: they are fed upon the higheſt Alps, where they continue until the ſnow begins to fall, and are chiefly ſent from hence into Italy. The fair continues three days, during which time the authority of the podeſta is ſuſpended, and the governor of the Valteline has abſolute juriſdiction over the town and diſtrict.

I cannot deſcribe how much I am perplexed with a variety of languages. I ſpeak Italian or French with the principal gentry, ſometimes hold a converſation in Latin, talk a ſmattering of German with my ſervant, and with my guide and the common people a kind of corrupt Italian, like the Milaneſe. I write my notes in Engliſh, and during my progreſs through Engadina, was employed in collecting a vocabulary of the Romanſh. You will not therefore be ſurpriſed ſhould you find a confuſion of tongues in my Letters.

The Valteline, called by the inhabitants *Valle-Telina*, extends from the confines of Bormio to the lake of Chiavenna, about the length of fifty miles. It is entirely encloſed between two chains of high mountains; the northern chain ſeparates it from the Griſons, the ſouthern from the Venetian territories; on the eaſt it borders on the county of Bormio, and on the weſt on the duchy of Milan.

The Valteline, together with the counties of Chiavenna and Bormio (which had long been the ſource of hoſtility between the Biſhops of Como and Coire,) came in 1336 under the dominion of Azzo Viſconti, ſovereign of Milan, who quietly tranſmitted them to his ſucceſſors. Upon the death of John Viſconti, who was Archbiſhop as well as ſovereign of Milan, his extenſive territories were divided between his nephews Galeazzo and Barnabas *. On the demiſe of Galeazzo his ſon John Galeazzo ſecured the perſon of his uncle Barnabas, and having confined him in the caſtle of Trevio until his death, which happened in 1395, annexed his dominions to his own, and became by this union the greateſt and moſt powerful prince in Italy. Maſtino, ſon of Barnabas, received an aſylum under Hartman, Biſhop of Coire, and as a mark of gratitude formally ceded to him his right to the Valteline, Chiavenna, and Bormio.

* I do not mention Matthias, the eldeſt brother, becauſe he died ſoon afterwards.

To

To this ceſſion, at that time of no avail, the Griſons owe the poſſeſſion of theſe provinces. The claim lay dormant for above half a century, until diſcontents ariſing in the Valteline, the Griſons made an irruption into the country in ſupport of the Biſhop's right; but their arms not being attended with ſucceſs they purchaſed a peace, by renouncing all pretenſions to the Valteline. They renewed, however, their claim in 1512, when Ludovico, called the Moor, Duke of Milan, was taken priſoner by Lewis the Twelfth, and the whole Milaneſe, compriſing the Valteline, was occupied by that monarch.

Soon after this revolution the Griſons, in conjunction with the Biſhop of Coire, entered the Valteline, and, having expelled the French troops, took poſſeſſion of the country; they were received with joy by the inhabitants, who did homage to their new ſovereigns, and in return obtained from them the confirmation of all their privileges. A compromiſe was immediately entered into between the Biſhop of Coire and the three leagues, to ſhare the ſovereignty of this country. In the following year Maximilian Sforza, raiſed to the ducal throne of Milan upon the expulſion of the French, ceded in perpetuity the poſſeſſion of the Valteline, Chiavenna, and Bormio, to the Biſhop of Coire, and the Griſons; a ceſſion ratified by Francis the Firſt, in the treaty of peace which he concluded with the Swiſs and their allies the Griſons in 1516, when he obtained poſſeſſion of the Milaneſe.

In 1530 the Griſons acquired the whole dominion of the Valteline, to the excluſion of the Biſhop of Coire; under pretence that the Biſhop had not furniſhed his quota of men and money in the war with James of Medici, in defence of theſe ceded countries, they compelled him to ſell his ſhare of the ſovereignty for a yearly income of 573 florins payable to him and his ſucceſſors out of the cuſtoms of Chiavenna. From that period theſe provinces were poſſeſſed by the Griſons without moleſtation, until the rival intereſts of France and Spain, the intrigues of the Pope, religious enthuſiaſm, the zeal of party, and exactions of the Griſon governors, kindled an inſurrection, which commenced with a general maſſacre of the Proteſtants, and raged for a ſeries of years with the moſt ſavage and unremitting fury.

In no country has the ſpirit of diſcord been more prevalent, or religious diſputes carried to a greater height. The zeal of contending factions has communicated itſelf to the hiſtorians of theſe events; on both ſides religion has been pleaded as a ſanction to the moſt atrocious actions, and alleged by one party as an excuſe for tyranny, and for rebellion by the other.

As the Valteline, Chiavenna, and Bormio originally belonged to the Milaneſe, the ſovereigns of that duchy always looked upon the Griſons with a jealous eye, and ſecretly embraced every opportunity to foment the diſturbances with which they, in common with all democratical ſtates, are occaſionally convulſed.

Upon the extinction of the family of Sforza in the perſon of Francis the Second, the Emperor Charles the Fifth ſeized the Milaneſe as a fief reverting to the empire, and, diſregarding the claims of the French King, gave the inveſtiture to his own ſon Philip. With the poſſeſſion of the Milaneſe Philip ſucceeded to pretenſions upon the Valteline; and although both he and his ſucceſſor Philip the Third entered into treaties of alliance with the three leagues, by which they reſigned all claims to this country; yet they never finally relinquiſhed all intention of recovering a province which had been once diſmembered from the Milaneſe, and which the conteſts between France and Spain rendered more valuable to them, than to their predeceſſors in the duchy of Milan.

During the conſtant wars which, from the acceſſion of Philip the Second, the reſtleſs ambition of the Spaniſh court entailed upon Europe, the German and Spaniſh branches

of

of the Houſe of Auſtria were inſeparably united; and the councils of Vienna were directed by the cabinet of Madrid. Under theſe circumſtances the Valteline, which, by connecting the Tyrol and the Milaneſe, afforded the only ſecure paſſage for the junction of the Auſtrian and Spaniſh troops, became of ſignal importance. Hence the Spaniſh governors of Milan, highly ſolicitous to acquire influence among the people, ſecretly fomented the ſpirit of diſaffection, which the conduct of the Griſon governors too juſtly provoked; promiſed aſſiſtance to the aggrieved inhabitants, and gained by theſe means a powerful party in favour of their court. The minds of the inhabitants being thus gradually won over to the Spaniſh intereſt, the Count Fuentes, governor of Milan, ventured, in defiance of the Griſons, to conſtruct the fort * which bears his name, for the purpoſe of commanding the paſſage of the Valteline.

The ſame reaſons which rendered the Spaniards deſirous to ſecure the Valteline, induced the French to obſtruct their deſigns. Henry the Fourth, with his uſual vigour, zealouſly eſpouſed the cauſe of the Griſons, and was preparing to ſend effectual aſſiſtance againſt the attempts of Fuentes, when he was aſſaſſinated; and the inteſtine troubles, which took place upon his death, for a time totally withdrew the attention of France from this quarter. The Spaniards, thus freed from their moſt formidable rival, purſued their projects upon the Valteline without oppoſition, and availed themſelves of the domeſtic diſſentions between the Griſons and the inhabitants.

The Griſons had long attempted to introduce the Reformation into the Valteline with the moſt injudicious zeal, and without paying ſufficient attention to the prejudices of a ſuperſtitious people. Churches for the worſhip of the reformed religion were conſtructed, and miniſters regularly ſettled with a permanent ſalary; ſchools for Proteſtant children were eſtabliſhed at Sondrio, notwithſtanding the remonſtrances of the Romiſh prieſts, and the oppoſition of the people. Many privileges of the popiſh eccleſiaſtics were taken from them; privileges † which, though repugnant to every principle of ſound government, were ſanctified by uſage, and could not be haſtily aboliſhed without exciting general diſcontent.

To theſe religious grounds of diſſatisfaction were added others, ariſing from the tyrannical proceedings of the Griſon governors, whom the advocates for rebellion painted, and it is to be feared with too much juſtice, in the moſt odious colours. "A ſyſtem," they cried, "of avarice and extortion is eſtabliſhed by law; the magiſtrates purchaſe their offices, and indemnify themſelves by the plunder of the country. All things are venal; life, honour, and even conſcience itſelf has a price; it is not poſſible for the governors to be more iniquitous, nor for the people to ſuffer a greater complication of calamity."

Theſe well-grounded complaints were aggravated, and the criſis of rebellion accelerated by an act of flagrant injuſtice. Many inhabitants of the Valteline, ſuſpected of favouring the Spaniſh court, particularly thoſe who had oppoſed with the greateſt zeal the introduction of the reformed doctrines, were arreſted, and conveyed into the country of the Griſons. Mock courts of juſtice were eſtabliſhed in ſeveral places, by which the priſoners were fined to a large amount; and ſome were even wantonly ſentenced to the torture.

Among the ſufferers was Nicholas Ruſca, a prieſt of Sondrio, who had gained the univerſal eſteem of the Catholics, by his unremitted reſiſtance to the Proteſtant doctrines, and who, for the rigid auſterity of his manners, was revered by the multitude as a ſaint.

* See Letter 68.

† They were independent of the civil authority for all delinquencies, and amenable only to the Biſhop of Coire.

The

This death * of Ruſca, amidſt the moſt excruciating torments, raiſed a ſpirit of fury lieu, ng the people too violent to be appeaſed. The emiſſaries of Spain did not fail to from aſe the general ferment, and to ſuggeſt the moſt plauſible motives for immediate Anc rection, by repreſenting that, as the Griſons were convulſed by factions, and France Valt rbed by inteſtine commotions, a favourable opportunity preſented itſelf to ſhake off tutic yoke under which they groaned. The ſuggeſtions had their effect; and the inthe bitants commenced hoſtilities by a general maſſacre of the Proteſtants.

The 20th of July 1620, was the day appointed for the perpetration of this horrid deſign. At dead of night Robuſtelli, the leader of the conſpiracy, accompanied by a hundred followers, arrived at Tirano, and, having aſſembled the chief Catholics, laid before them the intention of extirpating the Proteſtants; the dreadful propoſal was embraced with all the zeal of reſentment, inflamed by fanaticiſm. At break of day the ſignal for maſſacre being given by ringing of bells, great part of the inhabitants iſſued from their houſes, and repaired to the market-place with terror and anxiety. In this moment of perplexity the conſpirators fell upon the Proteſtants, and encouraged the people to follow their example, by deſtroying the enemies of the Catholic faith. Few words being neceſſary to exaſperate an incenſed and ſuperſtitious multitude, every perſon ſeized the firſt arms which preſented themſelves, ſcoured the ſtreets, ſtormed the houſes, and aſſaſſinated the Proteſtants.

During this dreadful ſcene, the podeſta, his family, and ſome of the principal Proteſtants took refuge in the town-houſe, and barricadoed the doors; the Catholics however ſoon forced a paſſage, and burſt into the apartments where the fugitives were collected. Their fury was for a moment ſuſpended at the affecting ſight of the podeſta and his wife upon their knees, preſenting their infant children with uplifted arms. But ſuch was the implacable barbarity of the enraged multitude, who demanded with repeated inſtances the death of the podeſta and his family, that this ſhort reſpite was of no avail, and only ſerved to embitter their fate; they were firſt impriſoned, and then put to death, without diſtinction of ſex or age.

The next ſcene of the maſſacre was exhibited at Teglio, whither ſome of the conſpirators were diſpatched from Tirano; they were dreſſed in red, as a ſignal to the inhabitants that the riſing at Tirano had ſucceeded. The Catholics ſoon collected in a body, and repaired to the church, where the Proteſtants were aſſembled for the celebration of divine ſervice. One of them levelled his piece againſt the miniſter, who was preaching; but miſſing his aim, the Proteſtants roſe up, drove out the Catholics, and barricadoed the doors. The aſſaſſins then climbed up to the windows, and ſhot from the outſide upon the crouded audience; the doors at length being burſt open, all the Proteſtants were put to the ſword excepting thoſe who renounced their religion.

Another party of Catholics made their way towards Sondrio; but the governor of the Valteline, appriſed of their deſign, ordered the inhabitants to take arms, and ſummoned the people of the neighbouring diſtrict to his aſſiſtance; in obedience to this injunction, both Proteſtants and Catholics began to aſſemble, but the Proteſtants were intercepted and deſtroyed. Some attempting to eſcape towards Engadina and Pregalia were overtaken in their flight, and involved in the common ſlaughter. Even the women laid aſide the natural ſoftneſs of their ſex, and, hardened by ſuperſtition, practiſed every ſpecies of outrage upon the bodies of the deceaſed. Meanwhile the Catholic troops entered Sondrio, and exciting their partiſans with the cry of "*Down with the enemies of the Catholic faith,*" made a general ſlaughter of the unhappy Proteſtants. Mercy, how-

* See Letter 80.

ever, was extended to the governor and his family, in a manner which does ho the chiefs of the revolt who conducted the attack of Sondrio. He was firſt impr but afterwards, in conſideration of his mild behaviour to the Catholics, diſmiſſe his family, and eſcorted in ſafety to the confines of the Valteline.

It would be ſhocking to humanity to enumerate all the particulars of this f maſſacre, or to trace its devaſtation in the ſeveral towns of the Valteline. It conti three days without intermiſſion; nor were its horrid effects confined merely to t who were aſſaſſinated upon the ſpot. Many who eſcaped into the country were hur down like wild beaſts; others, after eluding the fury of their purſuers, were conſum by hunger and fatigue, and numerous dead bodies were diſcovered in the woods, c verns, and torrents. Several Catholics, who were allied to the Proteſtants, ſhared the general diſaſter; even women and infants were ſlain in the moſt deliberate manne Some Proteſtants ſaved their lives by abjuring their religion, and many, who refuſed to purchaſe their ſafety by this conceſſion, were burnt alive.

In the midſt of this dreadful carnage, one inſtance of ſingular humanity deſerves to be recorded. Bartholemeo Peretti, the principal Catholic at Berbeno, being exhorted to put all the Proteſtants of that town to death, appriſed them of their danger, and aſſiſted them in effecting an eſcape. But this act of clemency was the occaſion of his own deſtruction, and he was executed as an enemy to religion.

All the Proteſtants being either deſtroyed or driven out of the country, the remaining inhabitants renounced their allegiance to the Griſons, and framing a new form of government, threw themſelves under the protection of the King of Spain, who ſent an army to their ſupport. The people of Bormio followed the example of the Valteline, with this difference, that they did not maſſacre, but only expelled the Proteſtants. Having entered into an offenſive and defenſive alliance with the inhabitants of the Valteline, they alſo formed an independent commonwealth.

The Griſons, divided among themſelves, were totally unequal to the chaſtiſement of their revolted ſubjects. The Catholics were deſirous of employing the mediation of Spain, for the purpoſe of recovering the Valteline; the Proteſtants, inclined to vigorous meaſures, propoſed an application to the Swiſs cantons, Venice, and France. After violent diſſentions, which were not terminated without bloodſhed, the Proteſtant intereſt prevailed, and a deputation was ſent to thoſe powers.

Zuric and Bern inſtantly diſpatched a body of troops, while the Catholic cantons refuſed to act againſt thoſe of the ſame perſuaſion. Venice, alarmed at the growing power of the Houſe of Auſtria, and deſirous of a paſſage through the Valteline, gave a flattering anſwer to the requeſt of the Griſons, but with a ſpirit of delay natural to a republic, deferred ſending any actual ſuccour. France too, having juſt emerged from a civil war, was more diſpoſed to negociate than to act with deciſion. Baſſompiere was diſpatched to Madrid to ſolicit the reſtitution of the Valteline; and, although a league was concluded betwixt the King of France, the Duke of Savoy, and the Republic of Venice, to aſſiſt the Griſons unleſs the Valteline was reſtored; yet all that could be obtained from the Spaniards was, that the forts of the valley ſhould be placed in the hands of the Pope; but as the Pope was a ſecret partiſan of the Houſe of Auſtria, and inclined to favour the rebellion of the Valteline, it was evident that he would reſtore the forts to the Spaniards upon the firſt opportunity. In this interval the united troops of the Griſons, Zuric, and Bern being defeated with great ſlaughter, the Valteline ſeemed upon the point of being for ever diſmembered from the Griſons, when the French court ſuddenly changed its plan of operation, entered into the war with a zeal as ſincere as it was politic, and vigorouſly interpoſed in behalf of the Griſons.

This

This revolution in the French politics was owing to the aſcendancy of Cardinal Richelieu, who no ſooner began to preſide in the cabinet, than the kingdom ſeemed to awake from that deep lethargy into which it had ſunk, during the feeble adminiſtrations of Ancres and Luynes. That great miniſter inſtantly perceived the importance of the Valteline; without waſting a moment in deliberation, he demanded an immediate reſtitution of that country, and enforced this demand by ſending a detachment of troops to the aſſiſtance of the Griſons, under the command of the Marquis de Couvres.

The general, animated with the ſpirit of the new miniſter, penetrated into theſe parts, joined his army to the Swiſs and Griſons, and in two campaigns drove the Spaniards from the Valteline, Chiavenna, and Bormio. The two latter provinces were immediately reſtored; but when the Griſon deputies repaired to the French general at Sondrio, to demand the ceſſion of the Valteline, Couvres propoſed that the exerciſe of the Proteſtant religion ſhould be aboliſhed throughout the valley; that the inhabitants ſhould appoint their own magiſtrates, and pay a yearly tribute of 20,000 crowns; and he ſhewed himſelf ſo ſtrongly inclined to circumſcribe the authority of the Griſons over the inhabitants of the Valteline, that he was ſuſpected of being bribed by them. But it ſoon appeared, that this conduct was occaſioned by directions from his court, and proceeded from a reconciliation which, unknown to the Griſons, had taken place between the Kings of France and Spain.

Richelieu, the ſoul of the French monarchy, having brought to maturity his project for ſubjugating the Hugonots, was too great a politician to enter into a foreign war at the eve of a civil commotion; and well aware that he could not maintain poſſeſſion of the Valteline without an expence of troops, which he could ill ſpare, temporiſed for the moment, and made overtures to Philip the Fourth, who, haraſſed by the long continuance of hoſtilities, ſeemed equally deſirous of an accommodation: accordingly preliminaries of a new treaty were immediately adjuſted by the contracting powers, at Moſſon in Arragon. It was agreed that the Valteline ſhould again be reſtored to the Griſons, under the following conditions: no other religion but the Roman Catholic to be tolerated; the inhabitants to elect their own governors and magiſtrates either from themſelves or from the Griſons, but always from perſons of the Roman Catholic perſuaſion; and the governors to be confirmed by the Griſons. In return for theſe privileges it was ſtipulated, that the inhabitants ſhould pay an annual tribute, the amount of which was to be ſettled by mediation. In conſequence of this treaty, concluded on the 5th of March 1626, the French reſigned the forts of the Valteline into the hands of the Pope, and evacuated the country.

In conformity to this alliance, the inhabitants having elected Robuſtelli, who began the maſſacre, for their governor, and appointed twelve magiſtrates, ſent a deputation to Coire to demand the confirmation of the Griſons, who were by no means diſpoſed to accede to a treaty ſo deſtructive to the rights of ſovereignty, which they poſſeſſed over the Valteline. Openly excited by the Republic of Venice, and ſecretly encouraged by the French miniſter, they refuſed to acknowledge the treaty of Moſſon. But as they were not in a ſtate to ſupport their claims by force of arms, they could only remonſtrate and negociate, without producing any immediate effect.

Affairs continued in this ſtate for three years, until Richelieu, having completed the reduction of the Hugonots by the capture of Rochelle, turned the whole force of France againſt the Houſe of Auſtria; the diminution of whoſe power he had long meditated. He now threw off the maſk; the dominions of the Houſe of Auſtria were invaded on all ſides, and every part of Europe became the theatre of his vaſt deſigns. Among other enterpriſes the Valteline engaged no inconſiderable ſhare of his attention; the Duke of

Rohan was diſpatched to the Griſons with a formidable army, and, worſting the Spaniſh troops in various encounters, diſpoſſeſſed them of the Valteline.

Upon this deciſive ſucceſs the French abated much of their ſolicitude for the intereſts of the Griſons; although they began the war with demanding an unconditional reſtitution of the Valteline, yet they were no ſooner in poſſeſſion of the country than they profeſſed, as on the former conqueſt, a great tenderneſs for the privileges of the inhabitants; and refuſed to ſurrender their acquiſition to the Griſons, unleſs upon terms more favourable to the people than had been offered even by the treaty of Moſſon.

The Griſons, having no proſpect of aſſiſtance from any other quarter, found themſelves under a neceſſity of acceding to theſe humiliating ſtipulations. The French, with a view probably of retaining the Valteline in their own hands, continued to delay the reſtitution, and clogged every ſubſequent negociation with conditions ſtill more unfavourable.

The Spaniards artfully availing themſelves of theſe circumſtances held out the moſt flattering overtures of accommodation. The Griſons, encouraged by theſe well-timed offers, and incenſed at the repeated inſtances of duplicity they had lately experienced, roſe up in arms, and drove the French from the Valteline. The treaty of Milan was the conſequence of this revolution: a cloſe alliance was concluded between the Spaniards and the Griſons; and the Valteline was reſtored under the guarantee of that very power which had originally exci ed the inhabitants to revolt.

This treaty, contracted in the year 1635, ſecured to the Spaniards the paſſage of the valley, which was the great object of the war, and reſtored the Valteline, Chiavenna, and Bormio to the Griſons, under the following conditions: an act of oblivion; the immunities of the ſubject countries to be confirmed as they exiſted before the revoluion of 1620; no religion but the Catholic to be tolerated; no perſon of any other perſuaſion to be permitted to reſide, excepting the governors, during the two years they ſhould continue in office, and the Proteſtants poſſeſſed of lands, who ſhould not be allowed to remain in the country above three months in the year; the privileges of the eccleſiaſtics to be reſtored in their full latitude.

A few alterations were made in the government of the Valley, and ſome regulations introduced for the purpoſe of ſtemming the torrent of injuſtice and corruption; they conſiſted chiefly in a new method of nominating the governors, and in creating the office of aſſeſſor. The articles were guaranteed by Spain, and inſerted in the capitulation, or treaty, ratified in 1639, at Milan, in the preſence of the deputies from the Valteline.

The deputies reproached the Spaniards for having ſummoned them to Milan, in order to be preſent, in ſilence and with tears, at the ſubverſion of their liberty; and, when the treaty was announced to the inhabitants of the Valteline, a general deſpair ſpread through all ranks. The people univerſally lamented that they had been deluded into a revolt under a promiſe of protection; that they had expended during this fatal war above 25,000,000 of florins *, for no other purpoſe than to procure an alliance between Spain and the Griſons, and to be reſtored to their original maſters, exaſperated by their revolt, and preparing to renew the former acts of injuſtice and tyranny which had driven them to rebellion. Nor were theſe murmurs ill-grounded; for, except the total excluſion of the Proteſtant religion, no material alteration was made in the fate of this valley.

Since this treaty the laws have been no leſs perverted than before, the exactions of the governors have continued as exorbitant, and the courts of juſtice as iniquitous and

* Near £2,000,000 ſterling.

corrupt.

corrupt. The change in the adminiſtration of juſtice has proved no alleviation; the creation of the aſſeſſor's office ſerved only to give the ſanction of law to the moſt iniquitous proceedings, or to vary the mode of oppreſſion. This innovation has been moreover attended with this bad effect to the bulk of the inhabitants; before the rebellion the nobles were principally ſubject to the rapacity of the Griſon judges; but ſince the pacification, the people have been more expoſed to exactions.

I have thus brought down the hiſtory of the Valteline to the pacification of 1637. Since that period no material change has taken place in the ſituation of affairs. The ſovereigns of Milan have always cultivated the friendſhip of the Griſons; and the inhabitants of the Valteline endured a regular courſe of tyranny under the government of a free ſtate; confirming a fact notorious in the annals of ancient Greece, that no people are more oppreſſed than the ſubjects of a democracy *.

LETTER LXXVI.—*Government of the Valteline.*

THE Valteline is divided geographically into three principal diſtricts, and politically into five governments.

The three diſtricts are, 1. *Terzero di Sopra*, or the Upper Diſtrict; 2. *Terzero di Mezzo*, or the Middle Diſtrict; 3. *Terzero di Sotto*, or the Lower Diſtrict.

The five governments are, 1. Of the Upper Diſtrict; 2. Of the Middle Diſtrict, called alſo the Government of Sondrio; 3. Of Teglio; 4. Of Morbegno; 5. Of Traona.

Each of theſe five governments is ſubject to a magiſtrate appointed by the Griſons, who is changed every two years. The magiſtrate over the middle diſtrict is called *Governor* of the Valteline, and poſſeſſes, in ſome reſpect, a ſuperior degree of authority to the others, who are ſtyled *Podeſtas*; he is alſo captain-general of the Valteline.

But before I proceed to explain the form of government, it may be neceſſary to lay before you the method of electing the governor and podeſtas, to whom the Griſons delegate their authority over the Valteline.

In 1602 ſome efforts were made to reſtrain the exceſſive venality and injuſtice of theſe magiſtrates, which were derived from the public ſale of the governments, and the ſhare

* During the late conteſts between France and the Houſe of Auſtria the Valteline became an object of great importance, and the neutrality of the Swiſs and Griſons alone prevented the occupation of the country by one of the contending parties. The inhabitants, irritated by a long ſeries of oppreſſions, eagerly adopted the new principles diffuſed by the French agents, and were anxious to deliver themſelves from the yoke of the Griſons. During the progreſs of hoſtilities, Bonaparte, well aware of the advantages derived from the neutrality of the Valteline, declined all interference, until he concluded the armiſtice with the Emperor, which terminated in the treaty of Campo Formio. He then availed himſelf of an inſurrection which broke out in the Valteline. The inhabitants, animated by the eſtabliſhment of the Ciſalpine republic, took up arms, drove out the Griſon governors, and, declaring themſelves independent, were ſoon afterwards joined by the natives of Bormio and Chiavenna.

The Griſons, who had recently experienced a revolution in their form of government, and hopeleſs of deriving aſſiſtance, either from the Swiſs Cantons or from the Houſe of Auſtria, requeſted the mediation of the French Republic, which being alſo accepted by the revolted provinces, the ſubject of diſpute was referred to Bonaparte, and two deputies on each ſide ordered to repair to Milan. The deputies from the revolted provinces inſtantly made their appearance, but the Griſons, torn by inteſtine factions, and averſe to the mediation of the French, which they had been unwarily induced to ſolicit, not only declined ſending their deputies, but returned no anſwer to the repeated ſummons of the French General. In conſequence of this ſilence, Bonaparte decided the conteſt, by declaring the revolted provinces independent, and confirmed the *union* which they ſolicited with the Ciſalpine Republic. Thus, after a period of near three centuries, the Valteline, Chiavenna, and Bormio were again incorporated with the Milaneſe, under a republican form of government.

of the fines for criminal offences between the Griſons and the governors *. To prevent corruption in the diſtribution of their offices, and exaction in the governors, two important changes were made. Inſtead of appointing one perſon, four candidates, nominated by the community to whom the turn of election belonged, drew lots for the charge. But this alteration would have been attended with few beneficial effects, had it not been followed by another, which tripled the ſtipend of the governors, and precluded them from any ſhare in the fines: yet theſe ſalutary regulations, which prevented the Griſons from ſelling the governments at ſo high a price, were a few years after aboliſhed by the diet. In order, however, to preſerve ſome appearance of impartiality in the choice of magiſtrates, it was ſtipulated in the treaty of Milan, that three candidates ſhould be nominated by the community to whom the election belongs, and that one of theſe ſhould be appointed by the diet. Yet this mode is a mere formality; three are always preſented, but the diet never fails to nominate the perſon recommended by the community. Theſe magiſtracies are allowed to be openly purchaſed: in general, part of the money is aſſigned to the public fund of the community, and the remainder diſtributed among the body of the people, in whom the right of election is veſted, and whoſe votes are ſeldom obtained without additional bribes. It will eaſily be imagined what a dreadful ſcene of † corruption is opened by this mode of proceeding; and how frequently perſons are appointed to the governments, who are totally inadequate to the diſcharge of their truſt.

Theſe magiſtrates, as repreſentatives of the ſovereign ſtate, enjoy the ſupreme authority, and are entruſted with the power of life and death; and, though apparently controlled by the laws, deviſe means to evade them. But their authority will be beſt underſtood from an account of the civil and criminal courts of juſtice.

The criminal tribunal is compoſed of the governor, vicar, and aſſeſſor.

The governor arreſts, impriſons, and examines the delinquent; though, according to the letter of the law, no examination ought to be made but in the preſence of the vicar and aſſeſſor. The criminal being convicted, and the ſentence paſſed, the governor enjoys the power of remitting the puniſhment, excepting in caſes of high treaſon, premeditated murder, or other enormous crimes. He has a ſmall annual ſtipend paid by the Valteline, but derives the chief part of his income from the fines for criminal offences, of which he receives two thirds. In all trials he is bound to follow the penal ſtatutes, which are drawn up with great preciſion and clearneſs.

The vicar is always a Griſon, and is choſen by rotation from the ſeveral communities: three candidates are preſented to the inhabitants of the Valteline, who appoint one of them to the vacant office. This mode, adopted in the treaty of 1639 to check cor-

* It is neceſſary to appriſe the reader that, when I uſe the word *governor* ſimply, I apply it indiſcriminately to the governor of the Valteline and the four podeſtas.

† All authors, both native and foreigners, who have written upon the Griſons, have not failed to enumerate the ill effects reſulting from this ſale of governments, which is authoriſed by law; but none have expreſſed their diſapprobation in ſtronger terms than Fortunatus Juvalta, in the following paſſage from a manuſcript account of the Griſons:

Qui ad honores et præſertim ad quæſtuoſas illas præfecturas aſpirabant, non aliter quam ambitu et largitionibus voti compotes fierent. Omnia enim venalia proſtrabant, non ſecus ac aliæ merces.

Neque vero privati tantum homines mercimonia illa exercebant, ſed communitates integræ etiam cauponabantur, neque erubeſcebant præfecturum communitatis cum legationibus ad dictas ſeu conventus publicos, quarum in ipſorum manu erat electio, cum officiis ad ſubditos et aliis emolumentis communitati provenientibus, conſilio publico, ſolenniter, conſtituto pretio, in multos annos vendere, et ne quid ambigi poſſet, publicis tabulis perſcriptis conſignare. Indigni prorſus aureâ libertate, utpote qui illam tam turpiter et ſcelerate profanarent ac proſtituerent. Emtores iſti emebant, ut carius venderent, ideoque ubi ſpes aliqua lucri affulgebat, merces ſuas venales exponebant, et plus offerentibus addicebant.

ruption, has not been attended with the desired effect. The community, in whose turn it is to elect the three candidates, leaves to the purchaser of the office the power of nominating his two associates; the diet, in delivering in the three names, recommends the person who had been previously designated by the community, and this recommendation is always accepted by the Valteline. The vicar ought to attend in person all trials when the governor examines the prisoners; but this custom is now fallen into disuse, and in lieu of his attendance, he receives an annual sum of 1127 Grison florins, about £83, from the governor of the Valteline and each of the four podestas: a shameful elusion, as the vicar was designed to be a kind of counsel in favour of the prisoner, and to prevent injustice in the mode of examination. When the prisoner is convicted, an account of the process is laid before the vicar, who must confirm the sentence. Torture, for the purpose of forcing confession, cannot be inflicted without his consent, and in his presence, which is never dispensed. Besides a small salary, and the annual sum of 1127 florins, he has a stated allowance, as well for every consultation, as for each time that he is present at the infliction of torture.

The assessor must be an inhabitant of the Valteline; he is nominated by the vicar from three candidates, chosen reciprocally from each of the three Terzeros. His vote is necessary to concur with the vicar in ordering torture: he must also attend when it is applied, and confirm the sentence passed against the convicted persons. He has no regular salary, but his profits depend upon the number of processes in which he is consulted. This is the only office which gives to the inhabitants of the Valteline any share in the criminal jurisprudence.

According to the original intention of the statutes, the assessor ought to be a person well versed in the laws of the country, and should be considered as an advocate for the accused; but as he is obliged to the vicar for his nomination *, he is commonly his creature, and seldom gives his vote in opposition to him.

Such is the general theory of the criminal jurisprudence in this country, by which it appears that the power of the governor is limited as well by the strict letter of the law, as by the interference of the vicar and assessor, whose concurrence is necessary for passing a final sentence. But this limitation exists only in theory; for the laws are easily eluded, and even made subservient to the conviction of the innocent as well as the guilty. The vicar and assessor, be they ever so upright, can hardly prevent the oppression of the judges; and if they are themselves rapacious, they receive their share of the plunder, for conniving at the governor's injustice.

Having gained insight into the practice of the courts of justice, I shall lay before you the general mode of proceeding, from the arrest of the criminal to his final sentence, interspersing the account with occasional remarks, which will serve to shew the abuses introduced into the administration of justice.

The governor issues the order of arrest, and commits the criminal to prison; he detains him in confinement as long as he pleases, delaying or hastening the inquiry as he thinks fit. The examination is secret, no one being present but the governor, or his substitute, and the notary, who writes down the process. It must be evident with how much ease persons versed in the arts of chicanery can brow-beat the ignorant, and perplex the prisoner, who is allowed no counsel. If the criminal is found guilty, whatever is his crime, he may make a composition with the governor, before the case is referred to the vicar; or, in other words, as the examination is secret, the governor can draw

* Usually the assessor either pays the vicar for his appointment, or else delivers him all his regular fees of office.

up

up the proceſs in the moſt favourable manner, and may give what explanation he pleaſes.

If no compoſition is made, the caſe is laid before the vicar and the aſſeſſor, who are obliged to give their vote according to the letter of the law; and as the ſtatutes are very ſevere, the penalties are either heavy fines or corporal puniſhment. In the former circumſtance, the governor receives two thirds of the fine; and, as in the latter, he has the power of remitting the puniſhment, excepting for the moſt atrocious crimes, he generally accepts a commutation in money, if the priſoner is able to pay it. By theſe means moſt offences may be eaſily compounded for; a circumſtance which empowers the rich to commit crimes with impunity. It is, however, a matter of little conſequence to the governor whether the priſoner is rich or poor; in the firſt inſtance, he may receive a compoſition from the priſoner himſelf, in the latter from the pariſh. For, in caſe the puniſhment for the crime is corporal, the expences attending it are conſiderable, as the executioner of Coire muſt inflict it; for which reaſon the governor generally remits the penalty, and receives from the pariſh a compoſition in money ſomewhat leſs than the expences of inflicting corporal puniſhment.

We may add to this liſt of grievances the power poſſeſſed by the magiſtrates of delegating their authority without reſiding in the government. If the delegate is a Griſon, he is called *Aſſiſtente*; if an inhabitant of the Valteline, *Tenente*. He either purchaſes the fines and perquiſites upon a calculation of their average value, or is reſponſible for them to the governor. In ſome places the delegation is almoſt always bought by the ſame perſon, who reſides upon the ſpot, and becomes a perpetual judge; in others, a ſociety of perſons join to purchaſe the profits of the magiſtracy; they appoint the nominal delegate, and ſecretly direct the proceſſes. Such a delegation may be called a ſettled tyranny, and, according to the expreſſion of an elegant author *, "*eſtabliſhes a wholeſale traffic between criminals and courts of juſtice.*"

From this general view of the criminal juriſprudence, we may readily infer the wretched ſituation of the inhabitants; where the ſupreme magiſtrate purchaſes a temporary office at an exorbitant price, and has an inadequate ſalary; where the principal profits of his charge ariſe from the fines for criminal offences; where it is his intereſt to arraign and to convict; and where he is himſelf the interpreter of the laws, of which he is commonly ignorant, the accuſer of the party, and the judge.

I have already mentioned the power which the governor enjoys of pardoning all offences except the moſt atrocious crimes. A pardon of this kind is called *liberatione*; and there are printed papers that contain its form, in which blank ſpaces are left for the name of the perſon, the crime committed, the date, and the ſignature of the judge. I encloſe a copy of a liberation †; it brings to my recollection thoſe acts of indulgence, which

* Eden's Principles of Penal Law, p. 61.

† The following is the form of a liberation:

Podeſtà Regente della Giuriſdizione di Tirano,
e ſue Pertinenze, &c Ciudice de Malefici
con Mero, e Miſto Impeio, e con
autorità di Spada, &c.

Per tenor della preſente, ed in ogni altro miglior modo, &c abbiamo libertato ed aſſolto, ſiccome liberiamo ed aſſolviamo, libero ed aſſolto eſſere vogliamo, e dichiariamo, che ſia.

Here the name of the perſon is inſerted.

da ogni, e qualſiſia pena pecuniaria, arbitraria, o afflittiva del Corpo, nella quale ſia incorſo, o abbia potuto incorrere per avere.

Here

which the Catholics obtain from Rome for the abſolution of their ſins; with this difference, that the acts of indulgence refer to a future ſtate, the liberation to this life.

The price of theſe pardons varies according to the magnitude of the crime, the condition of the culprit, and more particularly the time in which it is granted; for the ſum is greater when a governor firſt enters upon his office, than when he is retiring. Sometimes, during the laſt two or three hours previous to the expiration of the office, pardons may be procured at the loweſt rate; and I was aſſured from good authority, that a liberation for homicide has not unfrequently been obtained for about four-pence.

Do not ſuppoſe that this account of the venality which reigns throughout the Valteline is exaggerated; for I have taken great pains to aſcertain the truth, and it has been confirmed by perſons of all ranks, both in the Griſon and ſubject countries. Nor will you be led to imagine that all the governors are equally rapacious and unjuſt. Like the Roman proconſuls, ſome carry their rapine to the height, others are leſs exacting, and a few are free even from the moſt diſtant imputation of injuſtice.

The civil courts of juſtice remain to be conſidered.

Although the governor preſides and paſſes ſentence, yet, by a ſingular privilege, the cauſe is not always left to his abſolute deciſion: he examines the witneſſes, and draws out the proceſſes, but, at the requeſt of either party, the cauſe may be referred to an arbitrator, who is called *Savio*. He is either nominated by the plaintiff and defendant, or, if they cannot agree, is choſen by lot in the following manner: the plaintiff and defendant chooſe each ſix perſons; from the ſix appointed by the defendant the plaintiff ſelects one; the defendant nominates one of the ſix choſen by the plaintiff, and theſe two perſons draw lots who ſhall be arbitrator. The arbitrator then examines the acts of the proceſs, gives his opinion, which is called in the ſtatutes of the country, *Il Conſiglio del Savio*; and ſhould the governor refuſe to paſs ſentence, the opinion of the Savio is *ipſo facto* a deciſion.

From this deciſion an appeal lies to two arbitrators, called *Probi*, who are appointed by the parties in the manner above mentioned: ſhould they diſagree, then the two parties amicably nominate a counſellor, who accedes to one of the Probi; this ſentence is final, if it concurs with that of the Savio, but otherwiſe, a farther appeal lies either to the ſyndicate or diet, and ultimately to the ſeveral communities of the three leagues. When the governor decides in the firſt inſtance he receives 3 per cent. of the conteſted property, but only 1 per cent. when recourſe is had to arbitration, the other 2 per cent. being paid to the Savio.

By this ſingular privilege of referring to arbitration in all cauſes of property, the civil courts of juſtice are not open to ſuch corruption as the criminal tribunals; yet venality has taken ſo deep a root in the affairs of this unhappy country, that bribery finds its way even into theſe tribunals. When the civil cauſes are brought into the governor's court, and decided by him without the intervention of the Savio and Probi, there is an appeal to the ſyndicate, a body whoſe office I ſhall now explain.

Here the crime is mentioned.

Item. Da ogni altra coſa anneſſa, commeſſa; incidente; riſultante; emergente, e dipendente dalle premeſſe, &c. Però caſſando, &c. annullando, &c. commandando, &c. imponendo, &c. reſtituendo, &c. ſupplendo, &c. Eſſendo Noi alla ſuddetta Liberazione divenuti atteſa l'Autorità, con cui, &c. ed atteſa una tenue compoſizione con Noi, in nome ancora dell' E. C. D. fatta, e pagataci.

Dat, in Tirano dal Pretorio queſto giorn anno

At the end of every two years when the magiſtracies expire, ſyndicates are appointed by the Republic of the Griſons, for the purpoſe of inquiring into the adminiſtration of the ſeveral governors, and of hearing appeals from their deciſions. This court is compoſed of nine members, including the preſident, choſen reciprocally by the communities, three from each league. They make a circuit into each of the ſubject provinces; ſend out proclamations, that they are ready to receive all accuſations againſt the governors, examine witneſſes, decide appeals, and mitigate fines, without the concurrence of the vicar and aſſeſſor. They do not, however, finally determine in civil cauſes, which may be referred from their deciſion to the diet. The ſyndicate which was intended to oppoſe corruption and injuſtice, is nevertheleſs the great ſupport of both; nor can it be otherwiſe, for the ſyndics purchaſe their office from the ſeveral communities, and as their ſalary is very ſmall, can only reimburſe themſelves by receiving bribes from the judges or from the appellants. Their office is bought for a greater or ſmaller ſum, as more or leſs appeals of conſequence are to be ſubmitted to their arbitration. And what occaſions ſtill greater abuſes, when a cauſe of great importance is to be referred to the ſyndicate the governors frequently purchaſe from the communities, in whoſe right the election is for that time veſted, the power of nominating the ſyndics, and of courſe appoint their own creature. Hence this court is become ſo corrupt as to give riſe to a proverb, "*As venal as the ſyndicate.*"

Having thus endeavoured to draw a general ſketch of the civil and criminal juriſprudence in this country, I ſhall now mention the domeſtic adminiſtration of affairs.

All public concerns which do not fall under the juriſdiction of the Griſons, are diſcuſſed and determined by a council compoſed of five repreſentatives, one from each diſtrict, which meets as occaſion requires at Sondrio. Previous to its ſitting, the public notary writes to the ſeveral pariſhes of the five governments, informing them of the buſineſs to be tranſacted: each pariſh has its meeting, in which every houſeholder poſſeſſes a vote; and each diſtrict has its aſſembly compoſed of deputies from the ſeveral pariſhes, who chuſe the repreſentatives. In all affairs of importance, the repreſentatives are bound to vote in conformity to inſtructions received from their conſtituents, and all caſes of importance are decided by a majority of voices. The council is empowered to demand a redreſs of grievances from the Griſons, and to remonſtrate againſt infractions of the privileges granted to the inhabitants by the capitulation of Milan. The governor of the Valteline is preſent, but has no vote.

The tribute which the Valteline pays to the Griſons is ſo ſmall, the ſalaries of the governors ſo inconſiderable, and all duties ſo trifling, that moſt writers, who have had occaſion to mention this valley, have deſcribed it as the moſt happy and the leaſt oppreſſed of all ſubject provinces; without reflecting that notwithſtanding theſe advantages the country is annually drained of a ſum very diſproportionate to the ability of the inhabitants.

It is difficult to aſcertain the exact amount of this ſum, as it ariſes chiefly from the ſecret as well as public profits of the courts of juſtice. But when we conſider that the greater part is procured by extortion; that ſcarcely any diſtinction is made between innocence and guilt; that great crimes are committed with impunity, and petty offences ſeverely puniſhed; we may add, that the mode of exaction is more detrimental to the country than the loſs of the ſpecie itſelf; inaſmuch as a corrupt adminiſtration of juſtice is the worſt of all oppreſſions.

The clergy of the Valteline are not reſponſible to the ordinary courts, their immunities being ſo exorbitant as to render them almoſt independent of the civil authority; they are only amenable to the court of the biſhop of Como. If a prieſt is guilty of any

middle-

miſdemeanor, his perſon cannot be ſecured without the concurrence of the biſhop, and governor of the diſtrict in which the crime was committed. It is therefore extremely difficult to bring an eccleſiaſtic to juſtice; as impunity is eaſily purchaſed, either by ſecuring the favour of the biſhop's vicar or of the magiſtrate. Nor are theſe pernicious privileges confined merely to the clergy, but extend to all perſons wearing an eccleſiaſtical dreſs, with the permiſſion of the biſhop of Como.

The Griſons have frequently endeavoured to aboliſh theſe immunities, but always without effect. The nobles of the Valteline are intereſted to ſupport the privileges of the clergy, becauſe they can eaſily obtain the permiſſion of wearing the eccleſiaſtical dreſs, and can ſecure their property, by leaving their eſtates to the clergy at the extinction of all the heirs named in the ſucceſſion. Such eſtates, called *beneficia gentilitia*, are very common in the Valteline, and cannot be ſeized for debt, or confiſcated.

All civil cauſes of the clergy, below the value of two hundred livres*, are decided by the vicar of the Biſhop of Como: above that ſum they are brought before the biſhop. An appeal from his deciſion lies to the pope's nuncio at Lucern, from him to the eccleſiaſtical tribunal at Aquilea, and from thence to Rome.

LETTER LXXVII.—*Teglio.—Sondrio.—Anecdotes of the Painter Ligario.—Morbegno.—Delebio.*

INSTEAD of proceeding by the neareſt road from Tirano to Sondrio, I made a circuit by Teglio. I traverſed the plain of Tirano, rich in all the productions of nature, and continued for ſome way at the foot of the northern ridge of mountains, which are highly cultivated to their very ſummits. Lower towards the ſouth-eaſt, and further towards the north-eaſt, the tops of the rugged Alps make their appearance gliſtening with ſnow. I paſſed through a continued vineyard, and the ſoil is ſo fertile, that corn, millet, flax, and hemp, are ſown among the vines, which overhang in beautiful feſtoons. Every village is adorned with a thick grove of cheſnut trees, whoſe rich and dark foliage produces a pleaſing effect.

Teglio ſituated upon the top of a mountain, about nine miles from Tirano, and twelve from Sondrio, is a long ſtraggling place, and contains about three hundred houſes. Cloſe to the town are the ruins of a fortreſs ſtanding upon an inſulated rock, and formerly eſteemed of great ſtrength. This elevated ſpot commands a very rich and extenſive proſpect from Tirano to the lower part of the valley beyond Sondrio, as far as Morbegno. The government of Teglio is ſaid to compriſe the twelfth part of the Valteline; it is the moſt populous diſtrict, and contains about eight thouſand ſouls; it produces in a good ſeaſon much more corn than is ſufficient for the conſumption of the inhabitants, and rivals Sondrio and Tirano in the goodneſs of its wine.

Finding little at Teglio but the face of the country to excite my curioſity, I proceeded in my journey to Sondrio, through a tract equally cultivated with that which I had already paſſed. I deſcended by a gentle ſlope until I came to the Adda, which I followed, as it roars through the plain, ſometimes confined in a narrow channel, ſometimes expanding in a wider bed, and threatening the country with continual inundations.

Sondrio is the capital of the valley; the reſidence of the governor and of the vicar; but like all the towns I have hitherto ſeen in the Valteline, ſeems deſerted, and diſplays little appearance of trade or animation. The town, partly built in a plain, and partly

* Sixty-four Valteline livres = a pound ſterling

upon a rock, is placed in a very romantic ſituation, at the extremity of a narrow valley, and occupies both ſides of the Malenco, a furious torrent which frequently overflows its banks. Many of the houſes are very antient; for I obſerved the arms of the Viſconti, formerly the ſovereigns of this country painted upon the walls; theſe arms repreſenting an enormous ſerpent cruſhing a man in his jaws, are too remarkable to eſcape obſervation.

The Valteline, from its neighbourhood to Italy, has imbibed a taſte for the fine arts, and contains ſeveral collections of pictures which are not unworthy of notice. This country, however, has produced few artiſts of any eminence. Pietro Ligario is almoſt the only painter who deſerves to be mentioned, and his name is ſcarcely known beyond the limits of the Valteline.

Ligario was born at Sondrio in 1686, of the ancient family of Ligario, which took its name from a neighbouring village. Having diſcovered a lively genius, and a taſte for the elegant arts, he was ſent when young to Rome, under the care of Lazaro Baldi, from whom he learnt that exactneſs of deſign which characteriſes the Roman ſchool. From thence he repaired to Venice, and paſſed ſome time in ſtudying that exquiſite colouring for which the Venetian maſters are diſtinguiſhed. He made himſelf firſt known at Milan, where he met with ſome encouragement; and in 1727 returned to the Valteline; he found, however, but little employment, until he was honoured with the patronage of Count Deſalis, Envoy from Great Britain to the Republic of the Griſons. As he roſe in reputation his buſineſs increaſed; but being always poor he was frequently compelled to finiſh his productions with ſuch haſte, as rendered it impoſſible to give all of them that perfection, which he was capable of beſtowing. Hence ariſes that inequality which is ſo remarkable in his paintings.

There is ſcarcely a church in the Valteline which does not poſſeſs one of his pictures: the moſt capital of his pieces are the martyrdom of St. Gregory, in one of the churches at Sondrio, and St. Benedict, in the chapel of a nunnery near the town. Theſe were his lateſt performances; and as they were, contrary to his uſual cuſtom, finiſhed with great labour and exactneſs, may be conſidered as the teſt, from which we ought to eſtimate his abilities as a painter. The figures are well grouped, the principal characters diſtinctly marked, and the expreſſion of the heads is admirable; the ſtyle of colouring is lively without being gaudy, and chaſte without being dull. A few days after he had painted St. Benedict, he was ſeized with a violent fever, and expired in 1752, in the 67th year of his age.

Ligario is deſcribed by the connoiſſeurs as a painter who united correctneſs of deſign to beauty of colouring. He is remarkable for grouping his figures to the beſt advantage, and his heads are drawn with a noble ſimplicity; he is, however, repreſented as too much inclined to an imitation of the antique; his figures often reſemble ſtatues, and the folds of his drapery fall with too much preciſion, like the wet drapery in the ſculpture of the antients. The character of his faces is chiefly Grecian; but, it is remarked, that they are too ſimilar to each other, and look like the portraits of perſons of the ſame family; a circumſtance not unuſual to thoſe, who too ſervilely copy the antique.

Beſide painting, Ligario was ſkilled in muſic, mechanics, and agriculture, and has left behind him ſpecimens of no ordinary acquaintance with each of thoſe arts. He made, for his own amuſement, an organ of large dimenſions, and conſtructed a clock with a cylindrical pendulum, remarkable for the accuracy of its movements. He was fond of rearing plants and ſimples, and was ſo much attached to the ſtudy of agriculture, that he wrote inſtructions to his family upon the cheapeſt and beſt method of cultivation. He endeavoured to infuſe into his ſon and daughter, Cæſar and Victoria, a fondneſs

fondneſs for the polite arts. They both followed their father's profeſſion, but although not without ſome degree of merit, failed of equalling his reputation. Victoria was chiefly diſtinguiſhed for her ſkill in vocal and inſtrumental muſic.

I rode this morning to ſee the painting of St. Benedict, at a nunnery about a mile and an-half from Sondrio; having examined the painting, the abbeſs ſent a meſſage, deſiring the favour of my company, which I accepted with pleaſure. Upon entering the parlour, I made my obeiſance to the abbeſs who, in company with two nuns, was ſeated on the other ſide of the grate. After the uſual compliments, and enquiries if I was pleaſed with the picture, wine and cakes were brought in; the wine was the produce of their own vineyards, and was excellent; the cakes were ſhaped like ſkulls and bones.

The abbeſs and her friends behaved with great eaſe and politeneſs; they aſked many queſtions relating to England, natural to perſons ſequeſtered from ſociety; and one of them apologized for their curioſity, by remarking that women were not leſs inquiſitive or leſs fond of talking, becauſe they were ſhut up in a nunnery. The perſon who made this remark was pale, but not unhealthy; her figure was remarkably fine, and ſhe had been very handſome: a diſappointment in love, as I am informed, firſt induced her to take the veil, and to bury ſo much beauty and elegance in a convent. Struck with her manner and addreſs, I could not help wiſhing that ſhe may never live to regret ſuch a ſtep, and may feel all that eaſe and tranquillity of mind which are expected, but not always found, by thoſe who take the veil.

I am juſt returned to Sondrio, from a ſmall excurſion to Morbegno, and towards the extremity of the Valteline as far as Delebio. Near Sondrio the valley is about two miles in breadth, and remarkably fertile in vines and all kinds of grain. The right chain of mountains is clothed almoſt from the bottom to the ſummit with a continued vineyard, which is eſteemed to yield the beſt wine in the Valteline. I rode along the plain which ſtretches, without interruption, from Sondrio to the lake of Como. The middle part of this plain is occupied, and frequently overflowed by the unruly Adda, and being marſhy yields nothing but courſe paſturage; the ſides riſe gradually into gentle acclivities, and diſplay a rich variety of natural productions.

Morbegno lies on the left ſide of the Adda at the foot of the ſouthernmoſt chain; it is the handſomeſt town in the Valteline, and appears to have more ſhops, and to carry on more trade than all the others united. M. Planta, the preſent podeſta of Morbegno, no ſooner heard of my arrival, than he politely waited upon me at the inn, and invited me to his houſe. Finding that I was deſirous of proceeding to Delebio, he inſiſted upon accompanying me; and having ordered his carriage, propoſed an immediate departure, that we might return to his houſe by ſupper. M. Planta is the ſame gentleman to whom I was obliged for ſo hoſpitable a reception at his houſe at Cernetz; and I am happy to find that he is among the few who act with honour and integrity in this land of extortion. When vicar of the Valteline, he diſcharged the duties of that important office with great credit, and has entered upon his government with the ſame ſpirit of integrity. There is a pleaſure in receiving acts of politeneſs in a foreign country; but it is a double ſatisfaction to be obliged to perſons whoſe characters are deſerving of the higheſt eſteem.

The road from Morbegno to Delebio runs along the foot of the chain of mountains, which ſeparate the Valteline from the Venetian territories. This chain having a northern aſpect yields few vines, but is richly clad with hanging groves of cheſnut-trees, checquered with meadows and fields of corn. The Valteline expanded gradually as we advanced towards the lake of Como; in this part the whole plain is chiefly a moraſs,

expoſed

expoſed to the inundations of the Adda, which flows in a wide channel. The ſilk, which begins to be of great importance in the trade of this valley, is chiefly exported from Delebio, through Chiavenna, into Germany. Upon my return to Morbegno, I ſupped with M. Planta, and after the repaſt was entertained with an excellent concert.

After returning to Sondrio, I croſſed the Adda oppoſite Morbegno, over a handſome ſtone bridge, and proceeded along a road carried at the foot, and on the ſides of the northern chain of mountains. It was almoſt a continued vineyard with millet, Turkiſh corn, flax, and hemp, growing between the ranges of vines.

The romantic beauties of the Valteline are greatly heightened by the numerous remains of antient fortreſſes and caſtles; they were all diſmantled ſoon after the capitulation of Milan *, from a recent experience, that the inability of the Griſons to provide them with ſufficient garriſons, expoſed them to the enemy, and rendered them for the moſt part a ſource of annoyance rather than protection. It might be imagined, that ſome of theſe fortreſſes ought to have been retained for the purpoſe of aweing the inhabitants: ſuch an implicit confidence, however, is repoſed by the Griſons in the guaranty of the country by the Houſe of Auſtria, that they do not maintain a ſingle ſoldier throughout the whole Valteline.

LETTER LXXVIII.—*Commerce.—Productions.—Population.—of the Valteline.*

THE chief commerce of the Valteline is carried on with Milan and the Griſons. The principal exports are wine and ſilk, which turn the balance of trade in its favour; they enable the inhabitants to exiſt without any manufactures, and help to ſupply the money which is exacted by the governors.

The wine is ſent into the Griſons, Germany, the Venetian ſtates, Bormio, and occaſionally to Milan. Upon a rough calculation 73,000 ſoma, or horſe-loads, are annually exported: this year the ſoma ſold for a pound ſterling, which may be conſidered its average value. The ſilk is ſent to England, Zuric, and Baſle. The diſtrict of Delebio and Talomara produces the fineſt ſilk, the neighbourhood of Sondrio the next in quality, and the diſtrict of Tirano ſupplies an inferior ſort. Three thouſand pounds of the fineſt ſort, which is eſteemed as good as the ſilk procured from Piedmont, is ſent annually to England by way of Oſtend. The greater part is wound in the Valteline, for which purpoſe there are ſilk mills in the principal diſtricts.

Beſides theſe commodities, the Valteline exports planks, cheeſe, butter, and cattle. The inhabitants receive from Milan, corn, rice, ſalt, and ſilken ſtuffs; from Germany and Switzerland cloth and linen; from Genoa, ſpices, coffee, and ſugar.

There are no manufactures in the Valteline, and almoſt lla the menial trades are exerciſed by foreigners.

The population of the Valteline may be eſtimated from the following rough ſketch:

Upper Diſtrict contains	20,000 ſouls.
Government of Teglio	8,000
Middle Diſtrict	18,000
Lower Diſtrict	16,000
Total	62,000

* See Letter 89.

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The cottages of the peaſants, which are built of ſtone, are large, but gloomy, generally without glaſs windows: I entered ſeveral, and was every where diſguſted with an uniform appearance of dirt and poverty. The peaſants are moſtly covered with rags, and the children have uſually an unhealthy look, which ariſes from their wretched manner of living. The laſt year's drought occaſioned ſuch a ſcarcity of proviſions, that the poor inhabitants were reduced to the moſt extreme neceſſity. The price of bread was unavoidably raiſed ſo high, that in many parts the peaſants could not purchaſe it; and their only food was for ſome time a kind of paſte, made by pounding the hulls and ſtones of the grapes which had been preſſed for wine, and mixing it with a little meal. Famine, added to their oppreſſed ſituation, reduced the inhabitants to the loweſt condition of human miſery, and numbers periſhed from abſolute want. But it is a pleaſure to reflect, that they are in ſome meaſure relieved by the plentiful harveſt of the preſent year.

Perhaps no part of Europe is more fruitful than the Valteline, and yet there is no country in which the people are more wretched. Many reaſons may be aſſigned for the miſery to which they are reduced. The firſt and principal cauſe is the form of government. The governors generally abuſe the exorbitant authority entruſted to them by the laws; the peaſants are impriſoned upon the ſlighteſt information, and as all tranſgreſſions are puniſhed by fines, an accuſed perſon is ſeldom acquitted; ſo that a conſiderable number are annually ruined in the courts of juſtice.

Beſide the individuals who are ſuppoſed to ſuffer for their own guilt, the pariſhes are ſubject to continual aſſeſſments, towards defraying the expences for the trial and impriſonment of the poor pariſhioners: if they are unable to pay the ſum required, it is demanded from the pariſh to which the criminal belongs. In this caſe it frequently happens, that the aſſeſſments, inſtead of being laid upon the landholders, are impoſed upon each hearth, by which means the chief burden falls upon the poor.

Another cauſe of wretchedneſs proceeds from the preſent ſtate of property. Few of the peaſants are landholders; as from the continual oppreſſion under which the people have groaned for above two centuries, the freeholds have gradually fallen into the hands of the nobles and Griſons, the latter of whom are ſuppoſed to poſſeſs half the eſtates in the Valteline. The tenants who take farms do not pay their rent in money, but in kind; a ſtrong proof of general poverty. The peaſant defrays the coſts of cultivation, and delivers near half the produce to the landholder; the remaining portion would ill compenſate his labour and expence, if he was not in ſome meaſure befriended by the fertility of the ſoil. The ground ſeldom lies fallow, and the richeſt parts of the valley produce two crops; the firſt is wheat, rye, or ſpelt, half of which is delivered to the proprietor; the ſecond is generally millet, buck-wheat, maze, or Turkey-corn, which is the principal nouriſhment of the common people; the chief part of this crop belongs to the peaſant, and enables him in a plentiful year to ſupport his family with ſome degree of comfort. Thoſe who inhabit the diſtricts which yield wine are the moſt wretched; for the trouble and charge of rearing vines, of gathering and preſſing the grapes, is very conſiderable; and they are ſo apt to conſume the ſhare of liquor allotted to them, in intoxication, that, were it not for the grain intermixed with the vines, they and their families would be left almoſt deſtitute of ſubſiſtence.

Beſides the buſineſs of agriculture, ſome of the peaſants attend to the cultivation of ſilk; they receive the eggs from the landholder, rear the ſilk-worms, and are entitled to half the ſilk. This employment is not unprofitable; for although the rearing of the ſilk-worms is attended with much trouble, and requires great caution; yet as the occupation is generally entruſted to the women, it does not take the men from their labour.

With all the advantages, however, derived from the fertility of the ſoil, and the variety of its productions, the peaſants cannot, without the utmoſt difficulty, and conſtant exertion, maintain their families; and are always reduced to the greateſt diſtreſs, whenever the ſeaſon is unfavourable to agriculture.

To theſe cauſes of penury among the lower claſſes, may be added the natural indolence of the people, and their tendency to ſuperſtition, which takes them from their labour. Upon the whole, I have not, in the courſe of my travels, ſeen any peaſantry, except in Poland, ſo comfortleſs as the inferior inhabitants of this valley. They enjoy indeed one great advantage over the Poles, in not being the abſolute property of the landholder, and transferable, like cattle. They are therefore at liberty to live where they chuſe, to quit their country, and ſeek a better condition in other regions; a relief to which diſtreſs often compels them to have recourſe.

Chiavenna, Auguſt 15.

I quitted Sondrio yeſterday afternoon, and went up to the valley of Malenco; yielding vines, cheſnut-trees, rye, oats, and paſturage. As I aſcended, the ſides of the mountains were clothed with birch and firs; and their ſummits produced nothing but a ſcanty herbage. The inhabitants of this valley appear healthier, better clothed and more induſtrious, than the other peaſants of the Valteline. In conſequence of their diſtance from the ſeat of government, they are leſs expoſed to the rapaciouſneſs of the Griſon governors, and for the moſt part poſſeſs a ſmall portion of land. The valley is narrow, and watered by a torrent, which forms a continued cataract; the road is a faint path, by the ſide of a precipice, and carried over huge fragments of rocks. I paſſed the night in a ſolitary hut at the bottom of the Muret; the next morning mounted a rugged aſcent in the channel of a ſmall ſtream, obſerved nothing but bare rocks, without the leaſt appearance of vegetation, came to the top of the Muret, and traverſed a large maſs of ſnow and ice.

In theſe alpine ſituations the traveller ſees within the ſpace of a few hours nature in all her ſhapes; in the Valteline rich and fertile; here barren and ſtupendous. Theſe regions are ſo dreary and deſolate, that were it not for an occaſional traveller, the flights of a few ſtrange birds, the goats browſing on the rugged alps, and the chenherds who tend them, nature would appear quite inanimate. In theſe elevated ſpots, while I was

"Placed above the ſtorm's career,"

I noticed the pleaſing effect produced by the vapours and miſts floating in mid air beneath me; circumſtances finely felt and deſcribed by the author of the Minſtrel:

"And oft the craggy cliſt he lov'd to climb,
"When all in miſt the world below was loſt:
"What dreadful pleaſure there to ſtand ſublime,
"Like ſhipwreck'd mariner on deſart coaſt,
"And view the enormous ſea of vapour, toſt
"In billows lengthening to the horiſon round,
"Now ſcoop'd in gulphs, with mountains now emboſs'd!"

From the top of the Muret I deſcended about three hours a craggy, deſolate, and uninhabited country, and noticed the gradual increaſe of vegetation as I approached the road leading to Chiavenna, a little above Caſazza. This paſſage over the Muret, which ſerves for the tranſportation of wine and other merchandiſe from the Valteline to the Griſons is only open about five months in the year.

LETTER

LETTER LXXIX.—*Chiavenna.—Valley of St. Giacomo.—Chapel of St. Guglielmo.*

Chiavenna, Sept. 16.

MY correſpondence with you has been for ſome time interrupted. The day after my arrival from the Valteline, I was ſeized with a laſſitude which I attributed to the fatigue of journey; it ended in a violent pain and ſwelling of my right hand, the effects of a rheumatiſm, which probably ſeized me the night I paſſed at the bottom of the Muret: not being able to procure a bed, I ſlept in the hayloft, and ſuffered much from the piercing north wind, which blew from the glacier. I likewiſe imprudently walked the next morning, without intermiſſion or refreſhment, for the ſpace of ſeven hours, from the top of the Muret to Bondo; ſo that the cold and fatigue brought on a rheumatic complaint which has detained me ſix weeks. During great part of the time I wore my arm in a ſling, and was incapable of writing a line. What I moſt regret in this delay is, that I have been prevented from attending the general diet of the Griſons, which was held at Davos the latter end of laſt month.

The county of Chiavenna came under the ſovereignty of the Griſons in the ſame manner, and at the ſame time with the Valteline. During the war of the Valteline it frequently changed its maſters, but at the peace of Milan was finally reſtored to the Griſons. It is ruled, like the other ſubject provinces, by a Griſon governor, who is called commiſſary, and in a few inſtances is even leſs limited in his power than the judges of the Valteline.

The criminal court of juſtice is formed by the commiſſary, and the aſſeſſor, who is appointed by the commiſſary, from three candidates nominated by the county. He muſt attend all examinations, concur in ordering torture for the conviction of a criminal, be preſent when it is inflicted, and ratify the final ſentence; but as the aſſeſſor owes his place to the commiſſary, and ſhares in his exactions, he is a mere cypher, and ſeldom ventures to exert his right of interpoſing a negative. This circumſtance renders the courts of juſtice in Chiavenna more uniformly iniquitous than even thoſe of the Valteline; for the cloſe union between the commiſſary and aſſeſſor almoſt precludes a chance of redreſs, and gives unbounded ſcope to oppreſſion. It would be unneceſſary to deſcribe the mode of proceeding eſtabliſhed in this court of juſtice, as it is ſimilar to that of the Valteline. In civil cauſes the commiſſary receives five per cent. of the conteſted property, and an appeal from his deciſion may be ſubmitted to the ſyndicate.

Chiavenna, the capital, is ſituated at the foot and upon the ſide of a mountain, and contains about three thouſand ſouls. The inhabitants carry on but little commerce; the principal article of exportation (excepting the ſtone pots mentioned in a former letter *) is raw ſilk, of which the whole country produces about three thouſand ſix hundred pounds. A manufacture of ſilk ſtockings, the only one in the town, has been lately eſtabliſhed. The neighbouring country is covered with vineyards, but the wine is of a meagre ſort, and only a ſmall quantity exported. The great ſupport of Chiavenna is the tranſport of merchandiſe; this town being the principal communication between the Milaneſe and Germany, and from hence the goods are ſent either by Coire into Germany, or through Pregalia and the Engadinas into the Tyrol. A duty is laid by the Griſons upon all the merchandiſe which paſſes through Chiavenna, but is ſo ſmall that the whole cuſtoms, including thoſe in the Valteline, are farmed for 17,000 florins, or about £1260 per annum.

* See Letter 69.

The principal object of curiosity in the environs is the fortress in ruins, seated upon the summit of a rock, which overlooks the town, once celebrated for its almost impregnable strength. The only road which leads up to it is steep and craggy; the walls occupy a large space of ground, and are now covered with vines. The strongest part of the fortress was constructed upon an insulated rock, rent, as some persons conjecture, from the contiguous mountain, by a violent convulsion of nature. It is on all sides absolutely perpendicular, and the only communication with the castle was by a draw-bridge thrown across the intervening chasm. Others * suppose that the separation of this rock was the work of art, and affirm that it was excavated in 1343, by order of Galeazzo Visconti. The length is above two hundred and fifty feet, the height about two hundred, and the greatest distance from the adjoining rock about twenty. This fortification, though always deemed impregnable, was taken at different periods, sometimes by assault, but more frequently by famine or stratagem; it was finally demolished by the Grisons themselves.

Close to Chiavenna is a rock of asbestos, a kind of mineral substance, of a greyish silver colour, which can be drawn into longitudinal fibres as fine as thread, and was manufactured by the ancients into a species of cloth resembling linen: it is frequently mentioned by Pliny, and being indestructible by fire, was principally used for shrouds, to preserve the ashes of the dead bodies separate from those of the wood. The art of weaving asbestos into linen is not lost; but, as it is very troublesome and expensive, and as the custom of burning bodies, which gave it a value, is no longer in use, the manufacture is discontinued. Besides the rock of asbestos near Chiavenna, several other mountains yield the same substance; the best sort is found in the mountains that border the valley of Malenco, of which I have seen many fine specimens.

Quitting Chiavenna I entered the valley of St. Giacomo, which is narrow, and watered by the torrent Lira. It is part of the county of Chiavenna, contains about ten parishes, is under the jurisdiction of the commissary, and possesses several important privileges that preserve the inhabitants from the oppression which their neighbours endure. All causes are tried in the valley. The criminal statutes are those of Chiavenna, with this difference only, that, instead of the assessor, the valley chooses four persons, who are always present at the examination; and without whose concurrence torture cannot be inflicted, nor sentence passed. The valley has its own code of civil jurisprudence, and courts independent of the commissary, from the decision of which an appeal lies to the diet.

The lower part of the valley produces vines and corn; the upper, rye, barley, and pasture, mixed with large groves of fir and pine. On my left I passed the church of St. Guglielmo, supposed to have been erected in honour of William King of Sicily, the last sovereign of the male branch of the Norman line, which commenced in Count Roger, who conquered Sicily from the Saracens in the latter end of the eleventh century.

Roger was twelfth son of Tancred de Hauteville, a Norman Baron, and brother of the celebrated Robert Guiscard, the bravest of those brave Norman adventurers who sallied from their native country, formed a flourishing but temporary establishment in the southern parts of Italy, and furnished by their exploits ample materials for history and romance. The son of Count Roger, who inherited the name and spirit of his father, erected Sicily into a kingdom: and, at the extinction of the male line of Robert

* We may perhaps reconcile these two opinions, by admitting that the opening was originally occasioned by a violent convulsion of nature, but afterwards enlarged by art.

Guiscard

Guiſcard in the perſon of William, Duke of Apulia, annexed Apulia and Calabria to Sicily, and reigned over thoſe territories, under the title of the Two Sicilies, which now comprehend the preſent kingdom of Naples and Sicily. The throne of Roger was ſucceſſively filled by his ſon William the Firſt, ſurnamed the *Bad*, and by his grandſon William the Second, diſtinguiſhed by the name of *Good*. On the demiſe of William the Good without iſſue male, the Sicilians excluded Conſtantia, daughter of Roger, and wife of the Emperor Henry the Sixth, and elected Tancred, illegitimate grandſon of the firſt King. Tancred dying in 1193, William, his only ſurviving ſon, was crowned while an infant. Being dethroned by Henry the Sixth, who claimed the Two Sicilies in right of his wife Conſtantia, he was impriſoned with his mother Sibilla, in the fortreſs of Ems, near Coire. Some authors aſſert that he was deprived of his ſight, others that he was mutilated by order of Henry. Some relate that he died in priſon, others that he was releaſed together with his mother Sibilla; that he accompanied her to France, but, diſguſted with the world, retired to this ſpot, paſſed the latter part of his days as an hermit, with great reputation of ſanctity, and was canoniſed after his death. Such contradictory accounts occur frequently in the hiſtory of the dark ages. Muratori, who, from his knowledge of the ancient records of thoſe ages, is the moſt capable of ſolving this difficulty, leaves the queſtion undecided; but ſeems inclined to believe, that William was releaſed from his captivity, and afterwards turned hermit.

I ſhall ſubjoin a genealogical table of the Norman line, which is very complicated and obſcure, and erroneouſly repreſented by many writers.

I employed three hours in mounting from Chiavenna to the pleaſant plain of Campo Dolcino, and aſcended from the extremity of that plain to Iſola, the laſt village in the valley of St. Giacomo, from whence I am now writing.

In theſe parts where mountains riſe over mountains, and alps tower above alps, thoſe fallings of ſnow, mentioned in a former letter *, under the name of *Avalanches*, are extremely common; they are juſtly and warmly deſcribed by the poet of nature †:

> Among theſe hilly regions, where embrac'd
> In peaceful vales the happy Griſons dwell;
> Oft, ruſhing ſudden from the loaded cliffs,
> Mountains of ſnow their gath'ring terrors roll.
> From deep to deep loud thund'ring down they come
> A wintry waſte in dire commotion all;
> And herds and flocks, and travellers and ſwains,
> And ſometimes whole brigades of marching troops,
> Or hamlets ſleeping in the dead of night,
> Are deep beneath the ſmothering ruin hurl'd.

* Letter 31. † Thomſon's Seaſons.

GENEALOGICAL TABLE OF THE NORMAN SOVEREIGNS OF NAPLES AND SICILY.

TANCRED, Baron of Hauteville in Normandy.

ROBERT GUISCARD, his fifth son, Duke of Apulia, d. 1085.

ROGER, his twelfth son, great Count of Sicily, d. 1101.

BOHEMOND, Prince of Tarento, and Sovereign of Antioch, by conquest from the Turks in the first Crusade, d. 1110.

ROGER, Duke of Apulia, d. 1111.

WILLIAM, Duke of Apulia, d. 1227.

EMMA, mar. an Italian Prince.

TANCRED, a conspicuous warrior in the first crusade, whose amiable and spirited character is finely drawn and embellished by Tasso in his Gierusalemme Liberata.

ROGER II. first King of Sicily, Duke of Apulia 1127, first King of the Two Sicilies, d. 1154.

ROGER, died 1148, before his father.

TANCRED, his natural son, King of Sicily, 1189, d. 1194.

WILLIAM, dethroned 1194 by the Emperor Henry VI.

WILLIAM I. the Bad, d. 1166.

WILLIAM II. the Good, d. 1189. m. Jane, dau. of Hen. II. King of England.

CONSTANTIA, b. 1154. married Henry VI. Emperor of Germany, d. 1198, Queen of the Two Sicilies.

FREDERICK II. Emperor and King of the Two Sicilies, d. 1250.

CONRAD IV. Emperor and King of the Two Sicilies, died 1244.

CONRADIN, King of the Two Sicilies; excluded by Manfred, beheaded at Naples 1629, by order of Charles of Anjou.

MANFRED, his natural son, Regent of the Two Sicilies; King 1258; killed at the battle of Benevento.

CONSTANTIA, m. Peter of Arragon, who conquered Sicily from the House of Anjou, and whose posterity filled the throne of the Two Sicilies, as Kings of the House of Arragon.

LETTER LXXX.—*Splugen.—The Grey League.—Rheinwald.—Via Mala.—Tuſis.—Nicholas Ruſca.*

FROM Iſola the aſcent is ſteep and rugged to the top of mount Splugen, and the torrent Lira roars from precipice to precipice in ſtupendous cataracts. The road is hewn in the ſolid rock, in many places it has the appearance of ſteps, in others is perforated through the mountain; in purſuing my way over this dreary tract, I was frequently reminded of the road down the Gemmi *. Toward the ſummit of the Splugen is an oval plain, about two miles long and one broad, encircled with craggy points; it produces no trees, but yields rich paſturage; near the ſummit are rude blocks of a whitiſh kind of marble.

I baited my horſes at a ſmall inn which ſtands at the extremity of the oval plain, and is the only houſe between the valley of St. Giacomo and Splugen. Before the door I obſerved at leaſt a hundred horſes laden with merchandiſe; not leſs than three hundred are ſaid to paſs daily in this ſeaſon of the year.

Gently aſcending from this oval plain I obſerved the ſource of the Lira, which falls into the lake of Chiavenna, and ſoon afterwards croſſed the higheſt ridge, on the other ſide of which the torrents flow towards the Rhine. The country is wild, and ſcarcely produces a ſingle tree; as I deſcended firs began to make their appearance, at firſt thinly ſcattered over the rocks, and gradually thickening into large foreſts. This paſſage over mount Splugen is principally uſed for the tranſport of merchandiſe to and from Coire; it is kept open even in winter, though not without great difficulty; in that ſeaſon the merchandiſe is chiefly tranſported on ſledges, of which forty or fifty paſs in a day.

The territory of the Grey League occupies all the eaſtern tract of this mountainous country, and is by far the moſt conſiderable, in extent as well as population, of the three Griſon leagues. The etymology of the word Grigia or *Grey*, which gives its name to this league and the whole country, is extremely uncertain. Some authors have conjectured, that the people of this diſtrict were the original inhabitants of the country, and were called *Grey*, to diſtinguiſh them from the more modern inhabitants, *grey* hairs, an emblem of antiquity. Others, on the contrary, dating this appellation from more modern times, aſſert that the firſt authors of the revolution which, in 1424, gave liberty to the communities in the Grey League, were dreſſed in the coarſe *grey* cloth of the country; and, in commemoration of this great event, the league was called *Grey*. This appellation, however, is of very high antiquity, and exiſted long before the revolution. Tacitus calls the inhabitants of this country *Rhætos Griſeos, id eſt canos*; and Ammianus Marcellinus ſtyles the diſtrict about Coire, *Canos Campos*, or the *Grey* Fields. Hence it appears how very fruitleſs muſt be any inveſtigation concerning the true etymology of this word, which lies hid in remote antiquity, beyond the reach of our moſt inquiſitive reſearches.

Without entering too minutely into etymological diſquiſitions, we may only remark in general, that the term Griſons, or *Grey* people, was the general name by which *all* the inhabitants of Rhetia were diſtinguiſhed, and was not confined to that particular diſtrict called the Grey League.* The appropriation of the term to that particular body may be thus accounted for. When the inhabitants of this diſtrict firſt roſe in arms,

for the purpoſe of aſſerting their independence, they naturally ſtyled themſelves, the League of the people called Griſons, or the *Grey* League; while thoſe of the two other diſtricts, who afterwards formed ſimilar aſſociations, although equally known by the name of Griſons, took other appellations to diſtinguiſh themſelves from the firſt confederacy.

The territory now occupied by the Grey League was formerly ſubject to the Abbot of Diſentis, the Counts of Werdenberg, of Sax, of Maſox, and the Baron of Retzuns. The people ſeem to have originally poſſeſſed conſiderable privileges, which were gradually undermined, and occaſionally violated by their chiefs and barons, who, being engaged in perpetual hoſtilities with each other, laid great exactions upon their ſubjects, in order to pay their troops. At length, the people, impatient of oppreſſion, and excited by the example of the neighbouring Swiſs republics, determined to deliver themſelves from the grievous ſubjection under which they laboured.

The meeting of the inſurgents was by no means attended with any unwarrantable exceſſes, natural to an enraged populace, but was conducted with the greateſt compoſure. The leading members of the ſeveral communities having previouſly concerted the plan, a ſolemn deputation was diſpatched to the reſpective ſovereigns aſſembled at Truns; the deputies laid the grievances before the chiefs, from whom they not only extorted redreſs, but procured a confirmation of ſeveral obſolete privileges, and the addition of many others. In conſideration of theſe conceſſions, the chiefs reſerved to themſelves certain prerogatives, which ſome of their deſcendants or ſucceſſors poſſeſs at this day; a diſtinction which is now peculiar to this league, and renders the general conſtitution in ſome reſpects more ariſtocratical than that of the two others.

Theſe prerogatives conſiſt in being preſent at the annual diet of the league, and in alternately propoſing three candidates for *Landrichter*, or chief of the league, from one who is nominated by the deputies. The Counts of Wirdenberg being extinct, theſe prerogatives are now confined to the Emperor of Germany, as Baron of Retzuns, the Abbot of Diſentis, and the temporary Count of Sax. No real Count Sax now exiſts; for, upon the extinction of that family, certain communities * of the Grey League ſeized the domains, and continue to exerciſe the rights which were formerly enjoyed by the Counts of Sax.

The mode of creating a titular Count is as follows: A few days before the meeting of the diet of the league aſſembled at Truns, the communities in queſtion reciprocally elect a perſon who repreſents the Count. He is called in Romanſh † *Cau de Saxe*, and, although not unfrequently a common peaſant, ſits at the diet upon the ſame bench with the repreſentative of the Houſe of Auſtria and the Abbot of Diſentis, is addreſſed by a title equal to his ſuppoſed dignity, nominates the Landrichter every third year, and, having diſcharged his office, ſinks at the expiration of a few days into his ordinary rank.

Another diſtinction peculiar to the Grey League ought not to be omitted. Like the other leagues, the particular diſtricts poſſeſs their courts of criminal juſtice in the laſt reſort; but in all civil cauſes above a certain value, an appeal lies to ſixteen deputies annually aſſembled at Truns; I only mention the fact in this place, but ſhall have occaſion to enlarge upon it in a future letter.

Splugen, ſituated upon the riſe of an hill, at the bottom of a rugged chain of alps, is the principal place in the valley of Rheinwald, which forms a high juriſdiction of the

* Theſe communities are Lungnetz and Vals, Ilants and Grub, Flims and Caſtris.

† Literally *head* of Sax. *Cau* is ſuppoſed to be a corruption from *caput*.

Grey League. The Rheinwald is ſo called from the Hynder Rhine, which takes its riſe upon the Vogelſberg, at the diſtance of twelve miles, and runs through this valley. It was my intention to viſit this ſource, but my late indiſpoſition will not permit me at preſent to take fatiguing journeys in theſe mountainous regions.

The inhabitants of the Rheinwald ſpeak German, although they are entirely ſurrounded by people who uſe a different language. Towards the ſouth, beyond the mountains of Splugen and St. Bernardin, in the valleys of St. Giacomo and Maſox, Italian is the common tongue; towards the north and eaſt, in the valleys of Schams, of St. Peter, and of Lugnetz, Romanſh is ſpoken. This remarkable circumſtance has led many authors to conjecture that the people of this and other diſtricts of the Griſons, who talk German, are deſcended from the *Lepontii*, ſuppoſed to be a Celtic nation, and conſidered as the original inhabitants of this country, before the eſtabliſhment of the Rhetians. But this conjecture is not founded on facts, for, although the inhabitants of this diſtrict are immediately encircled by people who talk Italian and Romanſh; yet the German language is ſpoken at Avers, Cepina, Tuſis, and Furſtenau, which are only at a ſmall diſtance from the Rheinwald.

I quitted, on the other ſide of mount Splugen, the Italian climate and productions; the air of this valley is ſo piercing as to juſtify the truth of the proverb, "Nine months winter and three months cold." Two high roads meet at Splugen, one from Chiavenna, which I traverſed yeſterday, the other leads over the Bernard into Bellinzone. From Splugen to Arder the road continues by the ſide of the Hynder Rhine, through a mountainous region, which preſents at every ſtep the moſt awful magnificence of ſcenery.

The inhabitants of Suffers, the laſt village of the Rheinwald, talk German; and at a ſmall diſtance I entered the valley of Schams, where the peaſants ſpeak Romanſh. I made myſelf tolerably underſtood by a kind of jargon, compoſed of German, Italian, and Romanſh. I took out my vocabulary of the Engadina language, and compared the different modes of expreſſion and pronunciation. The inhabitants call their language Romanſh; but it differs widely from the Romanſh ſpoken in the valley of Surſet, and ſtill more from that of the Engadinas. The Bible and other books uſed in this valley are in the ſame dialect as thoſe which are read in the other parts of the Grey League, and the language is ſimilar, with a ſmall variety in the pronunciation.

The valley of Schams, a community of the Grey League, contains eight or nine inconſiderable burghs or villages, ſituated at ſmall diſtances upon each ſide of the Rhine; and is much lower and more fruitful than the Rheinwald. I croſſed the Rhine at Zillis, leaving on my left hand Donat, where the collective body of people meet annually to chooſe their magiſtrates, and regulate all civil and political affairs. Soon afterwards I came into the *Via Mala*, ſo called from the ſuppoſed difficulties and dangers of the paſſage. Such dreadful deſcriptions have been given by different travellers, that I expected to find it the worſt road which I had hitherto travelled. But I was agreeably deceived, for it was not more incommodious than the way from Splugen to Anders; nor did I once think it neceſſary even to diſmount from my horſe, except when I ſtopped to take a nearer view of any particular ſcene; the road even admits carriages. No reaſon occurs to me, why this particular way ſhould be diſtinguiſhed by the appellation of *Via Mala*, unleſs it alludes to former times, and modern writers have adopted them as the mere echos of ancient travellers. Perhaps the peculiar gloom of the valley, through which the road paſſes, may have helped to convey theſe ideas of terror to perſons not accuſtomed to alpine regions.

The

The Via Mala runs through a dark and ſolitary valley, overſpread in many parts with thick foreſts, which admit only a kind of twilight gloom, and ſo exceedingly narrow, that the ſteep rocks which encloſe it hang over, and ſeem almoſt to meet towards their ſummits. The Rhine foams at the bottom, ſometimes not viſible, and ſometimes faintly glimmering through

——darkſome pines, that o'er the rocks reclin'd,
Wave high, and murmur to the hollow wind. POPE.

About three miles from the commencement of the Via Mala, is a ſtone bridge of a ſingle arch, thrown acroſs a gulf; a ſublime ſcene, which I ſtopped to admire, and which I left with regret. The Rhine falls in a beautiful caſcade, rolls in a narrow channel at the depth of above four hundred feet, furiouſly daſhes under the bridge, expands itſelf into a wide baſon, and then is loſt under a rock, through which it has forced a paſſage. The impending mountains, partly bare and partly embrowned with firs, caſt an awful gloom over the gulf beneath.

I here was greatly ſtruck with one circumſtance, which I had obſerved in ſeveral other valleys of Switzerland, but never in ſuch perfection as in this place. The Rhine, which is at preſent about four hundred feet below the bridge, ſeems to have once flowed as high, or even higher than the preſent bridge, has, in the lapſe of ages, gradually worn away the rock, and excavated the deep channel in which it now runs.

Having paſſed the bridge, I went through a ſubterraneous opening a few paces in length, which had been cut in the overhanging rock, and a little further croſſed a ſecond bridge ſimilar to the firſt.

Soon afterwards I quitted the Rhine, and began aſcending. This part of the country is entirely uninhabited, and I did not meet with a ſingle houſe until I reached Roncalia, a village in the community of Tuſis, upon the top of a ſteep mountain. From thence I deſcended to Tuſis, ſituated near the torrent Nolla, at the beginning of the valley of Tomliaſca, and ſaid by antiquaries to have been built by the Tuſcans, when they took refuge in theſe parts under Rhætus.

Tuſis is well known in the hiſtory of the Griſons for the *Staffgericht*, or court of juſtice, which ſat in 1618, for the trial of perſons accuſed of holding a correſpondence with Spain, and of oppoſing the introduction of the Proteſtant religion into the Valteline. Amongſt thoſe who ſuffered in this iniquitous tribunal, the moſt remarkable was Nicholas Ruſca, whom I mentioned in my letter on the troubles of the Valteline, the cruel circumſtances of whoſe death excited the reſentment of the Catholics, and occaſioned an open rebellion.

Nicholas Ruſca, a native of Bedano, in the bailliage of Locarno, was educated in the Jeſuits' college at Milan, at the expence of Cardinal Boromeo, and made ſo great a progreſs in his ſtudies, that, in 1589, he was appointed principal of the church of Sondrio, although only in the twenty-fourth year of his age. He immediately ſignaliſed himſelf by his zeal in preaching againſt the reformed doctrines, and was one of the diſputants who ſupported the Roman Catholic faith againſt the Proteſtant miniſters in two public conferences held at Tirano in 1595, and the following year. His character has been placed in the moſt oppoſite lights by the reſpective hiſtorians of the two contending parties; by the one he is repreſented as a ſaint, and by the other as an aſſaſſin. But if we examine his life with impartiality it will appear, that, though he was hurried on by a violent ſpirit of fanatic zeal, yet he cannot be ſuppoſed guilty of the atrocious crimes which his enemies have laid to his charge. Soon after his promotion to the be-

neſſce of Sondrio, a miſunderſtanding aroſe between him and the Proteſtants, which gradually increaſed during the violence of the religious diſputes, and was carried on the following occaſion to the higheſt degree of animoſity.

One Chiappinus, and three gondoliers of Venice, were arreſted under ſuſpicion of a deſign to aſſaſſinate Scipio Calandrinus, the Proteſtant miniſter of Sondrio, at the inſtigation of Ruſca; a confeſſion of guilt and of Ruſca's privity being drawn from Chiappinus by the force of torture. The governor of the Valteline referring the affair to the diet of the Griſons, Ruſca was cited before that aſſembly, but declined to appear; either, as his enemies pretend, from a conſciouſneſs of guilt, or, as his friends allege, from a dread of the Griſons, who were incenſed againſt him. Having eſcaped from the Valteline, he waited at Bedano while his cauſe was publicly pleaded before twelve judges deputed by the Griſons. Being acquitted, he returned to Sondrio, where his zeal, inflamed by his late proſecution, continued to diſplay itſelf by an unremitting oppoſition to the eſtabliſhment of a Proteſtant ſchool at Sondrio; a favourite meaſure of the oppoſite party.

His enemies, baffled in their firſt attempt, brought againſt him a charge of a more public nature: they accuſed him of oppoſing the decrees of the Griſons, and of exhorting the inhabitants of Morbegno not to bear arms againſt the King of Spain, the protector of the Catholic religion. In conſequence of theſe inſinuations, a troop of ſixty Griſons arrived at Sondrio by night, and, ſeizing Ruſca, carried him to Tuſis, where he was not only impeached of high treaſon in the temporary court of juſtice there aſſembled, but was again examined, contrary to every principle of equity, for abetting the aſſaſſination of Calandrinus; and as he peremptorily denied theſe charges, he was condemned to the torture; which horrid ſentence was three times inflicted in the dead of night. The execution of the ſentence failing to extort the ſmalleſt confeſſion of guilt, he was, on the following night, twice ſubjected to a repetition of the ſame dreadful proceſs. Being of a weak frame, and full of infirmities, he was overcome by exceſs of agony, and expired amidſt the torments *.

Some writers have aſſerted that Ruſca died of poiſon, which he had taken previous to his laſt examination; but this ſuppoſition ſeems to be totally devoid of foundation, and was only advanced in order to refcue the judges from the odium of having tortured him to death. For when it is conſidered that, according to the common mode of applying torture in this country, he was five times drawn up by a pulley, with his arms tied behind, ſo as to occaſion a diſlocation of his ſhoulders; that he remained in that excruciating poſition above half an hour each time, and that he was in an infirm ſtate of body, we have no occaſion to ſeek for any extraordinary cauſe of his death.

The advocates for the Proteſtant party in vain endeavour to exculpate Ruſca's judges from an intolerant ſpirit of bigotry, by aſſerting that the whole tranſaction was a civil and not a religious proceſs; for theological rancour, however diſguiſed under the maſk of patriotiſm, was the leading motive to this proſecution. Independently indeed of all theoretical reaſoning, every rational Chriſtian, whatever his perſuaſion may be, muſt recoil with horror from enormities ſo inconſiſtent with the firſt principles of humanity,

* *Die dominica, quæ Auguſti 23 erat, ter ſine tamen pondere elevatus fuit; perſtititque in negativa, ſæpius miſericordiam Dei ac hominum implorans, quas voces dolor tormentorum ipſe exprimebat, erat enim homo crebris febribus vexatus, ac proinde ſuſtinendi torturam impos erat. Sequente die lunæ, facies illi velo obtegitur, ne a quoquam ſignum habere queat ullum, et bis abſque tamen pondere elevatur: tumque obſervatus eſt ſpiritus deficere, et cum ſolveretur tortura jam exſpiraverat, tenens linguam dentibus admorſam ſic ut ſanguis adpareret.* Aporta Hiſt. Reform. Eccl. Ræt. vol. ii. p. 268, 269.

and ſo contradictory to the meekneſs of that religion, which ought to be the rule of our actions *.

LETTER LXXXI.—*Valley of Tomliaſca.—Retzuns.—Reichenau.*

Coire, Sept. 21.

FROM Tuſis I continued my route along the valley of Tomliaſca, by the ſide of the Rhine, which here ſeparates the Grey League from that of the Houſe of God †; numerous towns, villages, and caſtles †, lie agreeably ſcattered through the vale in the moſt romantic ſituations. Paſſing through Catzis, and leaving on my left the fruitful mountain of Henzenberg, called in Romanſh Montagnia, and remarkable for its fertility and population, I proceeded to Retzuns, and turned to the caſtle of that name, which makes a conſpicuous figure in the hiſtory of the Griſons. Antiquaries derive the name of Retzuns from *Rhætium* or *Rhætia Ima* (Lower Rhætia), and give the following account of its conſtruction: In the early ages of the Roman hiſtory a numerous army of Gauls overran Lombardy, which was then occupied by the Tuſcans. A conſiderable body of whom driven from their native country followed their leader Rhætus, and eſtabliſhed themſelves in theſe alps. Rhætus gave his own name to the whole region, and conſtructed a fortreſs which he called *Rhætia Ima*, ſince corrupted into Retzuns. Livy relates the emigration of the Tuſcans into theſe parts without mentioning the name of their leader, who is called Rhætus by Pliny and Juſtin; and the number of places ſtill exiſting in theſe alps, which bear a reſemblance to that appellation, ſeem ſtrong teſtimonies in ſupport of this account.

But as events of ſuch high antiquity are liable to much doubt, let us deſcend to later times, which admit of no diſpute. The caſtle was the reſidence of a baron, who poſſeſſed the adjacent territory, and was called Baron of Retzuns. His name frequently occurs in the ancient hiſtory of this country, when the territory of the Griſons was divided into ſeveral petty ſovereignties. He is alſo mentioned among the chiefs, who aſſembled in 1424 at Truns, and enlarged the privileges of the people, when the communities united and formed the Grey League. At that time the Baron reſerved to himſelf certain prerogatives, which are now poſſeſſed by his ſucceſſors. In 1459, the male line being extinct, the barony deſcended to a collateral branch, and in 1470 came by purchaſe into the poſſeſſion of the Emperor Maximilian the Firſt. Ferdinand the Firſt mortgaged the barony for 14,000 florins to John Planta, in whoſe family it continued until the year 1679, when it was redeemed by the Emperor Leopold, and it now belongs to his granddaughter Maria Thereſa, the preſent Empreſs. The revenues of this territory are very ſmall, amounting to 2000 florins, or ſcarcely £200 per annum; but, by the poſſeſſion of it, the Houſe of Auſtria enjoys conſiderable influence in the political affairs of the Griſons. The delegate of the Empreſs, who is called Adminiſtrator, has a vote in the diet of Truns, and nominates every third year the *Landrichter*, or Chief of the Grey League.

Being deſirous of ſeeing the caſtle, I ſent my compliments to the Auſtrian delegate, who inſtantly made his appearance, and politely attended me. The preſent building

* Aporta, with the impartiality of an honeſt hiſtorian, ſpeaking of the iniquitous acts of this tribunal, ſays, "*Deum immortalem! Quid eſt carbones irritare, hoſtes ſtudio conquirere ac in ſe concitare, ſummis ima miſcere, ſi hoc non erat? Nullus tamen actus majorem huic tribunali invidiam conciliavit quam ſubita mors Nicolai Ruſcæ qui tormentis ſolutus ſub judicium oculis exſpiravit.*" Hiſt. Ret Eccl Ræt. vol ii. p 66.

† Guler, the hiſtorian of Rhetia, ſays, that no region of Europe contains ſuch a number of ancient caſtles as the country of the Griſons; and adds, that, in the ſmall valley of Tomliaſca, not more than a German mile long, and a quarter broad, there are more than ſeventeen.

was raiſed by Leopold the Firſt, upon the foundation of the ancient ſtructure, of which there are ſcarcely any remains; and I could not diſcern the ſlighteſt traces of Roman workmanſhip.

The caſtle is the uſual reſidence of the Auſtrian envoy to the republic of the Griſons; but as the preſent envoy dwells in his own houſe at Reichenau, is now occupied by the Auſtrian delegate. It is ſituated upon an eminence, and commands a fine view of the adjacent country; the rich plain, which extends as far as Reichenau, is bounded on all ſides by high mountains, and yields, among other productions, abundance of wheat; the Lower Rhine flows through it in a wide and ſtony channel.

The delegate finding, during our converſation, that I had a letter of recommendation from Count Firmian to the envoy at Reichenau, invited me to dinner, and politely offered to accompany me in the afternoon to Reichenau; an invitation which I made no ſcruple to accept. The company at table conſiſted of the delegate, his wife, and a capuchin friar. The lady ſpoke nothing but Romanſh, ſo that I was not able to enjoy much of her diſcourſe; I could only drink her health, and make her a ſhort compliment, which I had learned by rote. But I held a long converſation, in the French tongue, with the delegate, upon the barony of Retzuns, on which ſubject he kindly gave me much information. The barony compriſes the villages of Retzuns, Bonadutz, Embs, and Feldſberg, which form a high juriſdiction in the Grey League, and ſend two deputies to the general diet of the Griſons: the people are free; they aſſemble annually in the court of the caſtle to elect their magiſtrates, and every male at the age of fourteen has a vote. As delegate of the Empreſs of Germany, he has a kind of territorial juriſdiction over the village and diſtrict of Retzuns. He nominates the Landamman from three candidates appointed by the people; the Empreſs receives the fines for criminal offences, and pays the expences of the proceſs; the priſoners are confined in the caſtle, but are tried by judges choſen by the people.

After dinner I accompanied my hoſt through a rich and fertile plain to Reichenau, and waited upon M. Buol, the Auſtrian envoy, who received me with great politeneſs, and obligingly invited me to remain ſome time at Reichenau; an invitation I declined for the preſent, through my impatience of arriving at Coire, where I expected to receive ſeveral letters from my friends in England, from whom I had not heard ſince my departure from Milan. Reichenau is ſituated upon the conflux of the two branches which form the Rhine. The lower branch is the ſame which I followed during the greater part of its courſe from Splugen; the upper branch riſes near the mountain of St. Gothard, and flows through the valley of Sopra Selva. The caſtellated manſion of M. Buol ſtands in a moſt romantic ſituation upon a ſmall eminence backed by a perpendicular rock, and between two ſingular bridges conſtructed by the nephew of Grubenman. One, which is thrown acroſs the lower branch, meaſures about a hundred and five feet; the ſecond, built acroſs the river below the point of union, forms a moſt beautiful object. It is a wooden bridge of a ſingle arch, covered like that of Schaffhauſen, and conſtructed upon the ſame principle, with this difference however, that the road is not carried in ſo perfect a level; the ſpan of the arch is two hundred and twenty feet. As the banks of the Rhine in this ſpot are more elevated than at Schaffhauſen, the bridge of Reichenau is raiſed conſiderably higher above the ſurface of the water *; and as it preſents to the eye but a ſingle curve, the general appearance is far more picturesque, and the effect more ſtriking. But it is not ſo beautiful a piece of architecture as the bridge of Wettingen, which is Grubenman's maſter-piece †. The

* Letter 2. p. 5. † See Letter 13.

more I examine theſe bridges, the more I am ſtruck with the ſimplicity of the ſtructure; the more I am aſtoniſhed, that the perſon who firſt conceived the plan was a common carpenter, and totally unacquainted with the theory of mechanics.

In my way from Reichenau to Coire, I inquired at Embs for the remains of an old caſtle, in which William, ſon of Tancred king of Sicily was confined: at preſent there is not the ſmalleſt veſtige of ſuch a fabric; but according to the tradition of the country it formerly ſtood upon a hill, whereon the church is now erected.

The valley from Reichenau to Coire is two miles broad, and produces corn, paſture, and ſome vines, which begin to make their appearance near Embs. The Rhine flows through it with the rapidity of a torrent; ſeveral inſulated rocks are ſcattered on the banks of the river, ſome barren, others covered with wood, which greatly diverſify the ſcenery. The chain of mountains fronting the northern aſpect is overſpread with groves of fir; while the oppoſite ridge is richly mantled with oaks, and its ſummit crowned with firs and pines. A little way beyond I entered the League of the Houſe of God, and arrived at Coire.

LETTER LXXXII.—*League of God's Houſe.—Town and Biſhopric of Coire.—Convent of St. Lucius.*

THE whole territory, which is now compriſed within the League of the Houſe of God, was under the dominion of the Biſhop of Coire; until the people, oppreſſed by their rulers, threw off the yoke, and forming a general league, compelled the biſhop to ratify their independence.

The æra of this important revolution is not preciſely marked in the annals of this country. Some hiſtorians have even aſſerted, that it happened ſo early as the latter end of the fourteenth century, and was anterior to the formation of the Grey League. But this opinion does not ſeem to be grounded upon ſufficient evidence; as the facts alledged in its ſupport intimate little more, than that the biſhop granted ſeveral privileges to the inhabitants; but by no means prove, that the communities formed themſelves into a league at ſuch an early period, and afforded the *firſt* * example of liberty in theſe parts, an honour which is undoubtedly due to the Grey League. The revolution, which finally exalted this league into its preſent ſtate of freedom, probably took place between 1424, the æra of the formation of the Grey League, and in 1436, the year in which the Ten Juriſdictions roſe into independence.

This league is denominated in Romanſh *La Ligia de la Chiada* †; in German, *Gottſhauſbund*, from which we call it the *League of the Houſe of God:* it takes this appellation as well from the cathedral ſituated in its capital, as becauſe it was once under the juriſdiction of the Biſhop of Coire.

It is divided into eleven diſtricts; each of which (Coire excepted) is ſub-divided into two little republics, or communities, and ſends twenty-two deputies to the general diet.

Formerly the burgomaſter of Coire was perpetual chief of the league without election; but in the latter end of the laſt century the other communities claimed a power

* Campell eſpouſes this notion, and his authority undoubtedly carries great weight; but we muſt conſider that he grounds his opinion merely upon conjecture, and that, as a member of the League of God's Houſe, he was inclined to give to that League the preference in point of antiquity over the Grey League.

† *Chiada*, or as it is ſometimes written, *Ca-de*, ſignifies cathedral: hence the French call it *La Ligue Caddé*.

of nominating to this office in their turn The affair being referred to the arbitration of Zuric, it was decided, that for the future the twenty-two deputies ſhould chuſe two candidates from the members of the Senate of Coire, who ſhould draw lots for the charge; a mode of election now in uſe. The chief thus appointed is called *Bunds-preſident*, and has ſeveral privileges which diſtinguiſh him from the chiefs of the two other leagues; he receives all the letters addreſſed to the Republic of the Griſons from foreign powers, and is perpetual preſident of the Congreſs, becauſe that aſſembly is always held at Coire.

Coire is ſituated at the foot of the Alps, in a rich plain between two and three miles wide; a conſiderable breadth of valley for this mountainous country. Oppoſite is the chain of mountains which ſeparate the country of the Griſons from the canton of Glarus; of this chain the Calendar is eſteemed the higheſt point; but it is far inferior in elevation to ſeveral of the Swiſs and Savoy Alps I viſited in my laſt tour, and wants one certain criterion of great height, perpetual ſnow.

The town lies partly in the plain, and partly upon the ſteep ſide of a rock, and is ſurrounded with ancient brick walls, ſtrengthened with ſquare and round towers, in the ſtyle of fortification, before the invention of powder; the ſtreets are narrow and dirty; ſeveral towns of Upper Engadina, although not ſo large, make a neater and more elegant appearance. It contains about three thouſand ſouls.

Many fables are related concerning the foundation of Coire; the moſt probable account ſeems to be, that it owes its origin to the Emperor Conſtantius, who, in the 355th year of the Chriſtian æra, penetrated into Rhetia, and fixed his ſtation for ſome time near the preſent ſite of Coire. A town, as often happened on ſuch occaſions, was perhaps conſtructed near the camp; and from the imperial reſidence it is ſuppoſed to have derived the name *Curia*, its ancient appellation, ſince corrupted into *Coira* and *Coire*. The remains of two or three towers, which are evidently of Roman conſtruction, atteſt its antiquity, and ſerve to eſtabliſh the truth of theſe conjectures concerning its origin.

Coire was formerly a city of the German empire, ſubject to its own counts, and came in the ninth century under the dominion of the biſhop. Like many other cities of Germany, it obtained conſiderable privileges from the different emperors; and the inhabitants, having gradually circumſcribed the authority of the biſhop, at length eſtabliſhed an independent republic.

The government of Coire is ariſto-democratical; the ſupreme legiſlative authority reſides in the citizens, whoſe number amounts to two hundred and ninety-four, divided into five tribes. Each citizen has a vote at the age of twenty: the ſuffrages are never collected in a general aſſembly; but the object of deliberation is ſeparately laid before each tribe, and decided by the majority of the five tribes.

The executive power is entruſted to the council of ſeventy, compoſed of fourteen members annually elected from each tribe. This ſovereign council is divided into ſeveral leſſer departments, of which the principal is the ſenate, or council of fifteen, who have the chief direction of affairs, either ſolely or conjointly with other members of the ſovereign council. The chiefs of Coire are two burgomaſters taken from the members of the ſenate, who, although liable to be removed, invariably continue in office for life. They enjoy the ſupreme dignity by rotation, each for the ſpace of a year; during which term the acting chief, under the title of reigning burgomaſter, preſides in the uſual councils. The criminal tribunal is compoſed of the ſenate and fifteen other members of the ſovereign council. The priſoners are examined and the proceſs drawn up by a ſecret council, formed of the ſeven oldeſt members of the ſenate, of whom the

majority

majority muſt concur, to order the infliction of torture. After conviction the proceſs is laid before the criminal tribunal, which ultimately paſſes ſentence, and all offences excepting great crimes, are commonly puniſhed by fines.

My curioſity led me this morning to the apartment in which the general diet of the Griſons is held every three years; although it contained no object worthy of deſcription, yet it did not fail to ſtrike my attention, as being the place where the parliament of a free nation is aſſembled.

Coire ſends two deputies to this diet, who are generally the two burgomaſters; but if one of theſe ſhould be the chief of the league, the other deputy is choſen by rotation in the five tribes, with this condition, that he muſt be a member of the council of ſeventy.

From the apartment in which the diet is held I went to the town-hall, to ſee the form of adminiſtering the oath to the new *Bunds-preſident*. In general the ceremony takes place juſt before the meeting of the diet, in the preſence of the deputies of the League of God's Houſe; but as the perſon to whom the office now devolves was not preſent, it was neceſſarily poſtponed. All the parties being aſſembled, M. Tſcharner, the laſt preſident, with the public notary, ſtood at the upper end of the room; his ſucceſſor at the lower end, with the *Bunds-weiber*, or ſecretary, dreſſed in a cloak half black and half white, the livery of the league. M. Tſcharner addreſſed to his ſucceſſor a ſhort ſpeech in German, acquainting him that he was appointed by the deputies of the league, Bunds-preſident for the enſuing year, giving him joy of his promotion, and congratulating the League upon the nomination of a perſon ſo well calculated by his integrity and abilities to fulfil the duties of the office. At the concluſion of this ſpeech, the public notary reads the oaths for the preſident, for himſelf, and the ſecretary. M. Tſcharner then told them to hold up three fingers of their right hand, and to repeat their ſeveral oaths; which ceremony being concluded, the new preſident declared that he was highly flattered with the honour conferred upon him, and would ſtrive, as far as his abilities would permit, to promote the welfare of the League. Then the former preſident bowing, the new chief walked firſt out of the room; and thus ended the ceremony.

It is remarkable, that although the ariſtocratical party directs the nomination of the magiſtrates, preſident, and deputies, yet the appointment to the governments of the ſubject provinces is left wholly to chance. When the turn belongs to Coire, the five tribes meet ſeparately, and a candidate is appointed by lot from each tribe. Theſe five perſons then draw lots for the office, and the ſucceſsful candidate may ſell the turn; with this reſtriction, that the preference of purchaſing ſhall be given firſt to a member of the ſame tribe, ſecondly to any citizen of Coire, thirdly to an inhabitant of the League of God's Houſe. It frequently happens, that the five candidates agree to divide the profits of the ſale.

Upon the higheſt part of the town ſtands the biſhop's palace, the cathedral, and the houſes belonging to the chapter.

The biſhopric of Coire was probably erected ſoon after the firſt eſtabliſhment of Chriſtianity in theſe parts, under Conſtantine, or his ſon. The dioceſe once extended over the whole Roman province of Rhetia, which comprehended the preſent country of the Griſons, the Valteline, Chiavenna, and Bormio, together with the eaſtern diſtrict of Switzerland as far as the lake of Conſtance, and part of Tyrol; the biſhop's territorial poſſeſſions were alſo conſiderable, and his revenues by no means inadequate to his power and dignity. It would be unintereſting to trace the diminution of his authority, and the gradual annihilation of his juriſdiction over the town of Coire, and the common-

commonwealths of this League; I ſhall therefore obſerve, that his power was principally leſſened by the formation of the League of God's Houſe, and the limitation of his prerogatives in 1527: by the former he was compelled to ratify the independence of the communities; by the latter the principal prerogatives, from which he derived great influence in the political affairs of the Griſons, were at once annihilated; and he was reduced to the condition of a private perſon. Theſe privileges principally conſiſted in having admiſſion, and a vote in the general diet of the Griſons, in appointing ſeveral of the deputies, nominating the chief magiſtrates of ſeveral communities, and receiving appeals in civil cauſes from the deciſion of the provincial courts of juſtice. All theſe prerogatives were abrogated by a general diet of the Griſons in 1527, and the few remaining rights have been either purchaſed or ſuppreſſed. The introduction of the Proteſtant religion gave the final blow to his power; for his revenue ſuffered great diminution by the loſs of the tythes, which were ſeized by the reformed communities.

The biſhop is prince of the Roman empire; a dignity annexed to the ſee in 1170, by the Emperor Frederic the Firſt, and is ſtyled Lord of Furſtenberg and Furſtenau.

His annual revenues, which amount to about £2,000, ariſe chiefly from eſtates near Coire, and in the Tyrol; he receives alſo the annual ſum of about £70 from the cuſtoms of Chiavenna, in return for having ceded his claims over the Valteline, Chiavenna, and Bormio, to the republic of the three leagues *. The only prerogatives remaining are the right of coining money, and an abſolute juriſdiction both in civil and criminal affairs within the ſmall diſtrict in which his palace and the chapter are ſituated. Beyond this diſtrict he enjoys not the leaſt power; ſo far from interfering in the affairs of the town, he could not even enter it if the inhabitants choſe to exclude him; a right which they aſſerted in 1764. A Catholic, to avoid an arreſt, took refuge in the cathedral; and the inhabitants, inflamed by the biſhop's refuſal to deliver him up, raiſed a gate cloſe to the only opening which leads into the epiſcopal diſtrict, by which means the avenue to the palace was cloſed; this manœuvre conquered the biſhop's obſtinacy: the gate ſtill exiſts, and is ready to be uſed upon a ſimilar occaſion.

The biſhop is choſen by the chapter. Many diſputes relating to his election have ariſen between the canons and the League of God's Houſe; the latter, in virtue of a treaty contracted in 1541 with the biſhop, proteſts, that only a native of the League can be promoted to the ſee. But a foreigner being elected in 1692, the canons have ſince diſregarded the right aſſerted by the League, and have without reſerve given their votes to aliens, although the League remonſtrates at every new election. The preſent biſhop is Francis Dionyſius, of the ancient family of Roſt, in the Tyrol †.

The epiſcopal diſtrict is only a few hundred paces in circumference, and is ſurrounded by high walls; the greater part of the palace is modern, excepting a ſquare tower, which is ſuppoſed to have been conſtructed by the Romans; it is of ſtrong but clumſy workmanſhip, and in no degree entitled to notice, except as a monument of antiquity.

In the cathedral I obſerved no object of curioſity, unleſs the bones of St. Lucius, richly ornamented after the faſhion of Roman Catholic relics, ſhould be thought worthy of attention. The chapter conſiſts of twenty four canons, of whom ſix are reſident; the inhabitants of this diſtrict are all Catholics.

Above the palace, and at the higheſt extremity of the town, is the convent of St. Lucius, which takes its name from a ſmall chapel dedicated to that ſaint, who, according

* See page 92.

† In 1794, Charles Rodolph Baron of Buol of Scharfenſtein was elected Prince Biſhop of Coire.

to

to the legends of the Romiſh church, was a king in Britain in the latter end of the ſecond century. Having embraced Chriſtianity, and being inflamed with religious zeal, he quitted his throne, and wandering into theſe parts built an hermitage upon the ſpot where the chapel now ſtands, and by his preaching and example converted numbers to the goſpel. He is ſtyled the apoſtle of the Griſons, and is greatly revered as a ſaint by the Catholics; while the Proteſtants of the town pay him not the leaſt veneration. Burnet, in his Travels, obſerves: "*I endeavoured to ſhew the good old biſhop that the legend of Lucius was a fable in all the parts of it, but moſt remarkable in that which related to the Griſons; and that we had no kings in Britain at that time, but were a province to the Romans; that no ancient authors ſpeak of it, Bede being the firſt that mentions it; and that the pretended letter to Pope Eleutherius, together with his anſwer, has evident characters of forgery in it. All this,*" he adds, "*ſignified nothing to the biſhop, who aſſured me that they had a tradition of that in their church, and it was inſerted in their Breviary, which he firmly believed.*"

Well aware, that my endeavours to convince the monks of the falſity of the legend would have ended as unſucceſsfully as the reaſoning of Burnet, I did not imitate his example; but without entering into the merits or demerits of the ſtory, contented myſelf with admiring the beautiful proſpect, which induced me to viſit the convent. The environs of Coire are delightful; the plain is richly diverſified with corn and paſture; the hills gradually ſloping to the foot of the mountains are covered with vines, which yield wine of a pleaſant flavour, but not ſtrong. The points of view vary ſurpriſingly, from agreeable to romantic, from romantic to wild. The Rhine, which flows rapidly through the plain, begins here to be navigable by rafts, and merchandiſe is tranſported toward Lindau and Zuric.

LETTER LXXXIII.—*Caſtle of Haldenſtein.—Seminary of Literature.*

I RODE this evening, in company with two gentlemen of Coire, from whom I have received great marks of attention and politeneſs, to Haldenſtein, which may be called the ſmalleſt ſovereignty in Europe. We paſſed along the ſide of the hills, at the bottom of the rugged rocks which lead to the League of the Ten Juriſdictions, and enjoyed a fine view of the rich plain, ſtretching from the town of Coire as far as Embs. The beautiful verdure of the meadows, the ſloping hills clothed with vineyards, the craggy mountains partly covered with vines, partly overſpread with wood, and partly bare, formed altogether a ſtriking proſpect. We croſſed the Rhine to Haldenſtein, a ſmall village conſiſting of about ſixty houſes, and proceeded to the houſe occupied by the preſent baron, Rhodolph de Salis, who received me with great politeneſs, and kindly indulged my curioſity, by ſhewing me his little territory, and anſwering my inquiries with great readineſs and exactneſs. The baron, a gentleman of conſiderable learning and indefatigable induſtry, has formed a large collection of manuſcripts relative to the Griſons, from which he has drawn ample materials for a publication, in which he is at preſent engaged. His reſearches are chiefly biographical; and his work is intended to illuſtrate the memoirs of the principal perſons, who have rendered themſelves conſpicuous among the Griſons by their actions and abilities *.

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* This work is announced as not yet finiſhed, in Haller's *Schweitzer. Bibliothek*, vol. ii. p. 364. under the following titles: 1. *Rhætia Illuſtrata, contenant l'hiſtoire ou les principaux évenemens de la vie des Hommes célébres*

The barony of Haldenſtein, he ſaid, was formerly under the protection of the ſeven ancient cantons of Switzerland; ſince the year 1568, it has been an independent ſovereignty, under the protection of the three leagues. In the middle of the ſixteenth century it was poſſeſſed in right of marriage by John de Caſtion, French ambaſſador to the Republic of the Griſons, and at his death in 1565, came into the family of Schauenſtein; the male line being extinct, it was divided between two females of the collateral branches, one of whom married a de Salis, and the other an Hartmannis. In the beginning of this century the deſcendants of de Salis purchaſed the other half, and again reunited it under one perſon.

The whole barony conſiſts of a ſmall ſemicircular plain, between the Rhine and the bottom of the Calendar, about five miles in length, and ſcarcely one in breadth; and occupies alſo part of the mountain, which is too ſteep to be inhabited. It contains only two villages, Haldenſtein and Sewils, and the ſubjects amount to no more than between three and four hundred. The people were ſerfs, or vaſſals, until 1701, when the grandfather of the preſent baron gave them ſeveral immunities. At preſent the lord has territorial juriſdiction, the excluſive privilege of hunting and fiſhing, a claim of two days work annually from each of his ſubjects, and a load of dung from each peaſant. He appoints the judge in the criminal court, receives the fines for offences, from which he pays the expences of the proceſs, and has the power of pardoning. He nominates the preſident, and part of the jury in civil cauſes, and in all caſes of appeal judges in the laſt reſort.

The baron ſhewed me ſeveral coins ſtruck by his predeceſſors; the moſt ancient was a gold piece of 1611, the year in which the Emperor Matthias conferred the right of coining money upon the baron of Haldenſtein; a privilege which he ſtill enjoys.

The ancient caſtle of Haldenſtein, from which the barons took their title, is now in ruins; but the remains are ſtill viſible upon the ſides of the mountain. Above it is another ruined caſtle called Lichtenſtein, formerly inhabited by an anceſtor of Prince Lichtenſtein of Vienna, from which he is ſaid to derive his title. The prince is ſo convinced of his deſcent from the ancient poſſeſſors of this caſtle, and ſo proud of their antiquity, that he procured ſtone from theſe ruins, for the foundation ſtone of a ſuperb palace which he has built at Vienna, that it might be ſaid to contain ſome materials of the original caſtle in which his anceſtors once reſided.

The preſent caſtle of Haldenſtein, built in 1545, by James de Caſtion, is pleaſantly ſituated near the Rhine, and commands a fine view of the town of Coire, and the adjacent country.

A few years ago the caſtle was converted into a ſeminary for the education of youth. It was long a ſerious cauſe of complaint, that in the whole country of the Griſons there was no public ſeminary for completing the education of youth, and that all who followed any of the learned profeſſions were obliged to repair to foreign academies. M. de Salis, of Marchlins, and ſome other perſons of the firſt conſequence among the Griſons, conſidering this defect a diſgrace to their country, projected a plan for the inſtitution of an academy; and having obtained the ratification of the general diet, which aſſembled at Davos in 1761, carried it into immediate execution at their own expence, with a zeal which reflects the higheſt honour upon their exertions. The plan was extenſive and uſeful, and ſeemed well calculated to ſecure ſucceſs. For a ſhort time it

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célébres qui ont paru au païs des Griſons. 2. *Rhætia Literaria, ou Catologue de tous les auteurs Griſons, de leur vie, et de leurs ouvrages.*

The baron is ſince dead, and I have not heard that theſe works have been publiſhed.

wore a flouriſhing appearance; but this proſperous beginning was not ſucceeded by any beneficial conſequences. Its decline was owing to the little countenance given to literature, was haſtened by quarrels which aroſe between the profeſſors, and in 1779, within the ſpace of fifteen years from its firſt eſtabliſhment, the inſtitution was diſſolved.

Literature among the Griſons is at a very low ebb; one of the moſt learned men in this country, who would not be inclined to depreciate the knowledge of his countrymen without ſufficient foundation, thus expreſſes himſelf upon this ſubject *:—"As the adminiſtration of affairs is entirely in the hands of the people, the greater part conſidering nothing but their own profit, deſpiſe every ſpecies of polite learning, and are unwilling to allow any ſalaries, or beſtow any honours upon the profeſſors; ſo that all perſons who cultivate the ſciences are incited merely by the love of glory, and a diſintereſted zeal." If this is the caſe, it would be chimerical to expect the arts and ſciences to flouriſh in an ungrateful ſoil, where they meet with no encouragement: but even amidſt theſe obſtacles to improvement, there have never been wanting, and are ſtill to be found, men of ſuperior ſouls, who have dedicated their time to the cultivation of letters; and who merit the higheſt praiſe, for labouring in the vineyards without hopes of profit.

The proteſtants who receive a liberal education repair for the moſt part to Zuric or Baſle, and the Catholics to Milan, Pavia, or Vienna.

Each community has a ſmall ſchool, in which the children are taught to read, write, and caſt accounts; but which is only open from the 9th of November to the 7th of March. Thoſe parents who wiſh to give their children a better education, and can ſupport the expence, muſt either ſend them to foreign parts, or maintain a private tutor.

There is a Latin ſeminary at Coire for the children of the burghers, and another inſtituted in 1763, for the education of perſons intended for the church; theſe eſtabliſhments though poorly endowed have been productive of ſome literary advantages to the country. There is alſo a typographical ſociety at Coire for Latin, German, and Romanſh, and books in the Romanſh are printed in the Lower Engadina and at Diſentis.

LETTER LXXXIV.—*League of Ten Juriſdictions.—Fatzerol.—Baths of Alvenew.—Davos.—Valley of Pretigau.—Malantz.—Mayenfeld.—Baths of Pfeffers.*

I QUITTED Coire yeſterday morning, in order to make an excurſion into the League of the Ten Juriſdictions; but before I proceed in my account of this expedition, I ſhall ſend you a ſhort abſtract of the Hiſtory of the League, from the firſt foundation to its perfect independency.

This league ought properly to be called, and indeed is not unfrequently denominated in this country, the League of the *Eleven* Juriſdictions, from the number of communities of which it is compoſed; but as upon its firſt union it was formed of ten only, the original appellation is ſtill retained, although one of the juriſdictions has been ſince that period ſubdivided into two.

* *In Rhætia noſtra rerum adminiſtratio omnium a plebe dependet, cujus numerus potior non niſi quæ ante naſum ſunt, aut lucrum adferunt, ſapit, quicquid de reliquo agatur, litteras politiores, cum omni gloria et commodis quæ ex illis ſubſequuntur, quaſi rejicienda contemnit; nullum earum profeſſoribus premium, nullum meritum, laudem nullum tribuit; ſic ut qui litteras ament, et excolant, ex generoſo quopiam animi impetu id agant, ſepoſito omni alio fine, et abſque ullo ad eas calcari. Et his tamen non obſtantibus, reperti et apud Nos qui generoſi ediderunt pectoris documenta; reperti etiam, qui ſcientiarum culturam, ac amorem quibuſvis aliis prætulerunt, licet illorum labares ac memoria fere cum ipſis intereat, nec ſit qui eam ab interitu vindicet.* Aporta Hiſt. Reformat. Rhætic. Præfat.

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The territory was formerly under the dominion of the Barons of Vats, whose authority was limited, as the people poſſeſſed very conſiderable privileges. On the death of Donatus, the laſt baron, the count of Toggenburg, who married his eldeſt daughter, ſucceeded to his poſſeſſions; and Frederic, one of his deſcendants, dying in 1436 without iſſue, the communities united, formed an offenſive and defenſive alliance, and erected themſelves into a league. But although by this alliance they increaſed their immunities, yet they were by no means perfectly independent; for the male heirs of the count of Tockenburgh ſtill retained certain baronial rights, which conſiſted in appointing the criminal judge in ſeveral communities, in the power of pardoning, in a ſhare of the fines, in nominating the principal magiſtrates from three candidates, and in other prerogatives. Theſe rights, purchaſed by Sigiſmund, Archduke of Auſtria, and enjoyed by the Emperor Maximilian the Firſt, were exerciſed by means of a governor appointed with the concurrence of the league, and reſident at Caſtels. In proceſs of time the baronial prerogatives were gradually annihilated, either by purchaſe or conceſſion; the communities became free, and their independence was ſolemly ratified by the Emperor Ferdinand the Third, ſoon after the peace of Weſtphalia.

After half an hour's aſcent from Coire, I entered the League of the Ten Juriſdictions near Malix, paſſed through the community of Churwalden, in which the hamlets prettily ſcattered about the vale, and upon the ſides of the mountains, and made a ſmall circuit to the village of Fatzerol, which conſiſts only of five or ſix houſes, and ſtands at the bottom of ſome rugged mountains; it is celebrated in the hiſtory of the Griſons as the place where, in 1471, the firſt perpetual alliance was ratified by the deputies of the three leagues. I was accompanied to the ſpot by one of the principal inhabitants, who was not diſpleaſed with the enthuſiaſm I teſtified at beholding the birth place of their liberties. The houſe is now in ruins, and the apartment which was remarkable for the meeting of the deputies no longer remains. Having, with the aſſiſtance of my companion, traced its ſite, I conſidered with reſpect the ſpot which was once ſanctified by the ratification of a general union, lamented that ſo venerable a pile of building ſhould be ſuffered to fall into decay, and felt diſappointment, that no inſcription, by public authority, conſigned to poſterity the date of the tranſaction, and conſecrated the place which had been witneſs to an event the moſt memorable in the annals of this country.

Having ſatisfied my curioſity in viewing theſe reſpectable remains, I deſcended through Brientz to the Baths of Alvenew, placed in a moſt romantic poſition, by the ſide of the torrent Albula, and at the bottom of the majeſtic Alps; the ſource is ſulphureous, and reſembles both in ſmell and taſte the waters of Harrowgate.

Having paſſed through Alvenew and Anderwiſen, I mounted a rugged aſcent through a thick foreſt, and purſued a narrow path upon the ſide of a rock called Zug, over a precipice, with a torrent flowing beneath. This rock is moſtly bare, excepting a few ſtubbed firs, the remains of a foreſt which was formerly deſtroyed by fire; hence it is called the *Burnt Wood*, and exhibits a moſt deſolate appearance; at the bottom of this rock, cloſe to the torrent, are mines of ſilver, which were formerly worked. I entered the juriſdiction of Davos at the village of Glarus, and took up my lodging in a neat cottage.

The diſtrict of Davos is a long plain, a quarter of a mile broad, and gradually riſing into hills, which terminate in high mountains; it is not unlike the valley of Upper Engadina, but is more fertile. Near the church of St. John is a ſmall cluſter of eight or ten houſes, in the other parts the cottages are thickly ſtrewed over the plain, and upon the gentle acclivities, as in the canton of Appenzel, each with its little territory. The

produces oats, rye, large quantities of rich paſture, and yields yearly two crops of hay; it is now the ſecond harveſt, and the fields are covered with mowers. The bordering mountains are overſpread to their ſummits with foreſts of fir and larch, intermixed with meadows; above them tower the rugged Alps. A clear murmuring ſtream flows through the midſt of the plain, with a gentle though lively courſe; its banks prettily ornamented with ſcattered cottages, which are remarkably neat and commodious. Some are built of trees piled one upon another; others have ſtone foundations, and the upper part of wood; and a few are conſtructed with ſtone plaiſtered and white-waſhed. I walked to the valley of Dieſma, leading to Scampf in Upper Engadina, which is cloſed at ſome diſtance by a high mountain covered with ſnow, ſaid to be one of the moſt elevated in the country of the Griſons; it is called the Swart-Horn, and is part of the Scaletta Alps, which communicates with the Julian Alps, the Set, and the chain that ſeparates the Valteline from Upper Engadina and Pregalia. Cloſe to the inn is the town houſe, in which the deputies compoſing the general diet of the Griſons aſſemble every three years; it is alſo the place of annual meeting for the deputies of this league, when they chuſe the *Bunds Landamman*, or chief, and tranſact any particular buſineſs; this building is plain and ſimple, like the people themſelves.

The form of government eſtabliſhed in this diſtrict of Davos, is like that of the ſmall cantons of Switzerland, entirely democratical. The people muſt be aſſembled upon all extraordinary occaſions, ſuch as enacting new laws, deciding upon appeals from the general diet, and raiſing money; every male at the age of fourteen has a vote. The whole collective body of the people, however, do not meet in order to chuſe their magiſtrates, who are elected from deputies ſent by each diſtrict. The adminiſtration of affairs reſides in the great council of eighty-two, and the council of fifteen included in the former. The great council regulates all affairs relating to finance; the fifteen ſuperintend the police, and are judges in the civil and criminal courts of juſtice without appeal *. In criminal caſes torture cannot be inflicted without permiſſion of the great council. The Landamman is elected every two years and is preſident of both theſe councils.

This remote corner has produced ſeveral perſons eminent in literature; and particularly the two hiſtorians of the Griſons, Guler and Sprecher.

John Guler was born in 1562, and died in 1637, at a very advanced age. He was remarkable for his multifarious knowledge, and publiſhed in 1616, in the German tongue, "An account of the three Griſon Leagues, and other Rhetian people." In this work, much eſteemed by the natives, the author gives a circumſtantial detail of the origin of the ancient Rhetians, and of their emigration from Tuſcany into this country under their leader, Rhætus; traces their ſubſequent hiſtory under the Romans, and in the dark ages, to to the beginning of the fifteenth century, when the union of the three leagues was eſtabliſhed.

Guler has illuſtrated the hiſtory of ancient and modern Rhætia by wooden engravings of medals, towns, battles, genealogical tables, coats of arms, and maps, which, though rude, are curious for their antiquity. The author alſo meditated a ſecond volume, on the union of the three leagues, on the topography and hiſtory of the whole country, and on the tranſactions of his own times. For this part of the work Guler was eminently qualified; as well from his extenſive erudition, and for having carefully

* It is remarkable, that through the whole League of the Ten Juriſdictions there is no appeal from the deciſion of the civil courts of juſtice, excepting in the community of Alvenew: the inhabitants of that place being Catholic and Proteſtant, an appeal lies to the civil tribunal either of Churwalden or of Davos.

digeſted

digeſted Campell's account of the Griſons *, as from the various offices to which he was raiſed both in the civil and military line, and the repeated embaſſies and negociations in which he was employed. It is, however, uncertain whether this part was ever finiſhed; and, if finiſhed, it is probably loſt; for Aporta ſearched for it without ſucceſs in the libraries and among the manuſcripts of his countrymen †.

The deficiency of this valuable performance, however, is ſupplied by Fortunatus Sprecher, the contemporary, friend, and relation of Guler.

Sprecher was born in 1548, and in 1617 gave to the world *Pallas Rhætica armata et togata*; or the military and civil hiſtory of the Griſons from the earlieſt ages to the æra in which it was publiſhed. In this work, which is a model for method and perſpicuity, the author details the national hiſtory, in ten books. The firſt contains the emigration of the Tuſcans, their ſettlement in this country, the deſcription of the antient Rhetians, and their tranſactions to the time of Auguſtus. The ſecond compriſes the period from the Auguſtan æra to the eſtabliſhment of the empire of the Franks. The third treats of the Griſons under the empires of the Franks and Germans, till 1476. The fourth details the wars of the Griſons; namely the Swabian war againſt Maximilian the Firſt, and the campaigns againſt James of Medici, from 525 to 1531. The fifth compriſes the wars in which the Griſons were engaged under the ſtandards of foreign powers. The ſixth relates the union and political ſtate of the three leagues, and their alliances. The ſeventh, eighth, and ninth, ſeparately deſcribe the Grey League, the biſhopric of Coire, the League of God's Houſe, and the League of Ten Juriſdictions. The tenth concludes with an account of the Valteline, Chiavenna, and Bormio.

A ſecond volume, which appeared in 1629, under the title of, *Hiſtoria Motuum et Bellorum poſtremis hiſce annis in Rhetia excitatorum et geſtorum*, relates the wars and troubles of the Griſons from 1617 to 1629, a period of turbulence and diſcord.

A third volume continued the hiſtory of the Griſons from 1627 to a ſhort time before the author's death, which happened in 1647; but has never been publiſhed.

Towards the extremity of the beautiful valley of Davos I came to a ſmall lake, about four miles in circumference, which is remarkably deep and clear, and abounds with excellent trout. It lies at the foot of the mountains, and ſupplies a ſmall ſtream, which, being joined by one from the valley of Flola, and by another from that of Dieſma, forms the murmuring brook that waters the valley of Davos, and falls into the Albula above the baths of Alvenew; this lake is conſidered by ſome writers as a ſource of the Rhine.

From the banks of the lake I deſcended to another, half a mile in circumference, that lies in a wild and romantic ſituation, and ſupplies a torrent which is the ſource of the Lanquart. A little further I traverſed a ſmall pleaſant plain ſtrewed with cottages, which compoſe the village of Lower Lera; at the extremity of which the deſcent was ſo ſteep and rugged, that I diſmounted until I reached the vale of Pretigau. I paſſed through Cloſter, Kublis, Jenatſch, and Schiers, following the torrent Lanquart. The country is delightful, and greatly diverſified with all kinds of productions, yielding different ſpecies of grain, rich paſtures, abundance of fruit-trees, with large quantities of hemp and flax; hemp is much cultivated, and ſeems to be carried to great perfection; the peaſants manufacture from it coarſe but very ſtrong linen.

The mountains on each ſide are in ſome parts covered with foreſts; and ſo great is the abundance of wood, that the fields are either ſtudded or ſkirted with larch, pines,

* See Letter 73.

† See Aporta Hiſt. Refor. Ecc. Ræt. Præfat.—Haller, in his Schweit. Bib. No. 814. ſays, that it was prepared for the preſs, but unfortunately burnt.

and beech. The hamlets are ſcattered through the plain, and along the declivities of the mountains, in a very pleaſing manner; the houſes are moſtly of wood, in the Swiſs mode of conſtruction, and not leſs convenient; the road through this vale deſcends gently all the way. I have not for ſome time viſited a more agreeable, fertile, and populous diſtrict.

A little beyond Gruſch, which lies under ſome bare rocks in a fertile plain, the valley of Pretigau contracts, leaving only a narrow paſs between impending rocks, juſt broad enough to admit the torrent and the road. The ſudden change from the fertility of the country to the barrenneſs of this ſpot, ſufficiently ſtriking of itſelf, was ſtill further heightened by the gloom of the evening, which added to the horror of the ſcenery. The road was carried for ſome way in continued aſcent and deſcent along the craggy precipices, ſometimes above, and ſometimes upon a level with the torrent. The path was ſo narrow and rugged, that I gave my horſe to the guide, and, continuing my way on foot, ſoon emerged from this obſcure paſs, and, as far as I could judge by the dim light of the ſtars, came into a fine and rich country, and went through a ſeries of vineyards to Malantz, in the diſtrict of Mayenfield.

The High Juriſdiction of Mayenfield is the moſt remarkable in the whole country of the Griſons, becauſe the inhabitants are reſpectively ſovereign and ſubjects. They are ſovereign, becauſe they form part of the League of the Ten Juriſdictions, ſend deputies to the general diet of the Griſons, and nominate to the governments of the ſubject provinces. They are ſubject becauſe, like the provinces, they are governed by a bailif ſent from the Griſons, who is changed every two years, and in whom reſides the ſupreme authority. This ſtrange intermixture of privileges and ſubjection is derived from the following cauſes:

The lordſhip of Mayenfield was, like the whole territory of this league, ſubject to the Counts of Toggenburgh, and, in 1436, joined the other communities to form a league. In 1509, the prerogatives enjoyed by the Count of Toggenburgh were ſold, by his heirs, for 20,000 florins, to the three leagues, which confirmed the privileges of the inhabitants. In 1537, Malantz and Jennins, the remaining part of this High Juriſdiction, were alſo purchaſed for 10,000 florins. Thus, while the inhabitants of all the other juriſdictions, who came under the dominion of the Houſe of Auſtria, have procured their abſolute independence, the people of Mayenfield and Malantz, although making part of the ſovereign power, have continued in the ſame ſtate as at the firſt formation of the leagues. The bailif or governor is appointed by the communities of the three leagues in rotation, and the inhabitants of this very High Juriſdiction nominate the bailif, when it is their turn to preſent to the office.

The bailif appoints the *Stadvogt*, or chief magiſtrate of the town, with this condition, that he muſt be a member of the ſenate; upon a vacancy in the ſenate or little council, he nominates the new ſenator; he arreſts and examines criminals, and has power to make a compoſition; he cannot order torture, or paſs ſentence, without the concurrence of the members of the criminal tribunal *, and, when they paſs ſentence, can pardon; he can give a liberation, in the ſame manner as the governor of the Valteline †; he receives part of the fines for criminal offences, and a certain portion of the great tythes; at Malantz he appoints the chief magiſtrate from three candidates preſented by the people. Both Mayenfield and Malantz have their civil courts; from that of the former an appeal lies to the bailif.

* The members of this tribunal conſiſt of ſix judges from the diſtrict of Mayenfield, and ſix from that of Malantz, three from Jennins, and two from Flæſch. † See Letter 76.

From

From Malantz, a ſmall but handſome town, lying upon the ſide of a hill, I deſcended into a rich plain of paſture, about three miles in breadth, croſſed the Rhine, and ſoon afterwards aſcended into the county of Sargans, through hanging groves of larch, fir, birch, beech, and oak. From the eminence I looked down upon a fine view, on the other ſide of the Rhine, of hills gently riſing from the river into mountains. Upon this chain are ſituated Mayenfield, Malantz, Jennins, and Flæſch, ſurrounded by corn-field, meadows, and vineyards; it ſeemed the richeſt part of this country. I obſerved beyond the confines of the Griſons, at a little diſtance, the road * which I paſſed in 1776, as I travelled from Appenzel to Wallenſtadt.

Having reached Pfeffers, I left my horſe at the village, where there is an abbey of Benedictine monks, the abbot of which is a Prince of the empire, and took a guide to the baths, which are diſtant about three miles. I paſſed through a thick foreſt of beech, down a ſteep and rugged path, to the houſe which the abbot has built for the reception of the company. Formerly the accommodations were extremely indifferent, and the deſcent into the baths was attended with great inconvenience, if not with danger. Affairs are now greatly changed; the waters are conveyed by pipes into commodious baths; and the houſe, which is not only convenient but ſuperb, hangs in a moſt romantic ſituation on the ſide of a mountain, amidſt the gloom of the foreſt, cloſe to the lively Tamina.

Being deſirous of viſiting the warm ſource, I croſſed the Tamina, over a wooden bridge, and entered a chaſm or narrow opening, in a rock of lime-ſtone, through which the torrent has forced its way. The chaſm is from ten to twenty feet broad, and from two to three hundred feet high. In ſome places it is open at top, and overſpread with ſhrubs; in ſome its ſides converge and almoſt touch; in others it is quite cloſed with enormous maſſes of fallen rock, and ſcarcely admits a feeble ray of light. The paſſage through this chaſm is quite dreadful, and my head almoſt turns giddy at the recital. I went along a kind of ſcaffolding erected for the purpoſe of ſupporting a wooden aqueduct, through which the waters are conveyed: the planks upon which I walked either reſting upon long beams, or ſuſpended by iron cramps driven into the ſides of the rock, hang over the torrent. I was frequently obliged to ſtoop for a conſiderable way to avoid the impending rock; in ſome places I traverſed a ſingle plank, which forms a kind of bridge ſuſpended over the gulf, tottering under my weight, and ſo narrow that I was compelled to walk ſideways. In this manner I continued for near a quarter of an hour before I reached the warm ſprings, which guſh abundantly from the crevices of the rock. Here the baths were formerly conſtructed: the houſes for the reception of the ſick were built upon a platform, under the overhanging crags; a ſituation ſo dreary, that I no longer find the deſcription given by the writers of the laſt century in the leaſt degree exaggerated. Willing to convey a general idea of their gloomineſs, they repreſent theſe dwellings as never receiving the rays of the ſun, and ſo dark that the inhabitants were accuſtomed to uſe candles at midday. The approach to the baths was very inconvenient; the company deſcended ranges of perpendicular ladders, or were let down by ropes. As the rocks have fallen, and overwhelmed theſe ſubterraneous dwellings, I could obſerve no traces of them, except ſome holes in the rock for the beams which ſupported the houſes.

Theſe baths have been ſo renowned for their efficacy in curing the gout, rheumatiſm, and cutaneous diſorders, that, according to the general opinion, they contain a ſmall portion of gold; as if that metal would render them more ſalutary. The waters are

* See Letter 5.

tranſparent,

tranſparent, perfectly free from ſmell or taſte, and about the warmth of milk immediately drawn from the cow. Perſons who have analyſed them ſay, that they depoſit no ſediment, are as light and pure as rain-water, are impregnated with a ſmall quantity of volatile alkali and iron, but contain no ſulphur.

I returned from this ſource through the ſame chaſm, and along the ſame tottering ſcaffold, and was not diſpleaſed when I iſſued again into day. I then mounted to the village of Pfeffers, deſcended into the plain of the Rhine, and haſtened to Coire.

LETTER LXXXV.—*Union of the Three Leagues.—Diet.—Conſtituent Parts.—Mode of chooſing the Deputies.—Analogy between the Griſon Diet and the Britiſh Parliament, according to the Plan of extending to the People at large the Right of electing Repreſentatives.—Remarks on the Inexpediency of that Plan.*

THE country of the Griſons is divided into three leagues, which unite and form one republic; the Grey League, the Cadée, or the Houſe of God, and the Ten Juriſdictions. The reſpective communities of theſe three Leagues have their peculiar conſtitution, enjoy their municipal laws and cuſtoms, and are independent commonwealths in all concerns, which do not interfere with the general policy of the whole republic, or the articles of the particular league of which they form a part.

It is remarkable that the preciſe period at which the three leagues formally united to compoſe one general republic cannot be aſcertained from any poſitive record in the annals of this country. Campel, the beſt hiſtorian of the Griſons, places this event about 1436 *. For, though the firſt articles of union which are tranſmitted to poſterity were drawn up in 1524, it is plain that there were others of anterior date, becauſe it is therein expreſsly mentioned, that the ſaid articles were compiled from a former treaty, with great additions. This union has ſince been frequently renewed at different periods; but the articles remain without alteration.

The connection between the three leagues is maintained by means of an annual diet of the congreſs and of the three chiefs.

The diet is compoſed of ſixty-three deputies, and the three chiefs; the Grey League ſends twenty-ſeven, and the Houſe of God twenty-two, and the Ten Juriſdictions fourteen; they are choſen in the ſeveral communities by every male at a ſtated age †.

The diet aſſembles annually about the beginning of September at Ilants, Coire, and Davos, by rotation, and continues ſitting three weeks or a month. The chief of the league in whoſe diſtrict the diet is held, is preſident for that turn, and has the caſting voice in caſe of equal ſuffrages. The ſupreme authority is not abſolutely and finally veſted in the diet, but in the communities at large; for in all affairs of importance, ſuch as declaring war, making peace, enacting laws, contracting alliances, and impoſing taxes, the deputies either bring poſitive inſtructions from their conſtituents, or refer thoſe points concerning which they have no inſtructions, to the deciſion of the reſpective communities; ſo that in effect the ſupreme power conſtitutionally reſides in the body of the people, and not in their repreſentatives at the diet. All queſtions in the diet are carried or rejected by a majority of voices, and the mode of voting is as follows: In all caſes where the communities ſend inſtructions, the deputies deliver them to the

* Sprecher, however, in his Pallas Rhetica, fixes the union of the three Leagues in 1471, p. 228. Elz. edit. Moſt of the Griſon hiſtorians follow Sprecher.

† The age which entitles them to vote is not exactly the ſame in all communities; in ſome it commences as early as fourteen.

ſecretary,

ſecretary, who reads them aloud; if theſe inſtructions are obſcurely worded, as ſometimes happens, either through accident or deſign, the diet determines by a majority, in what ſenſe they ſhall be taken. In reſolutions, which, for want of inſtructions, are ſubject, after the deciſion of the diet, to the reviſal of the communities, each member is at liberty to vote as he chooſes. The three chiefs have no ſuffrage, when the communities ſend their inſtructions, becauſe they are not repreſentatives; but in all caſes which are either not referable, or afterwards ſubmitted to the communities, they vote in the ſame manner as the deputies.

It is worthy of remark, that, although each deputy has the power of bringing in any bill, or propoſing any queſtion, yet he can only communicate it to the aſſembly through the medium of the preſident, who may lay it before the aſſembly, without any previous notice, at any time before its diſſolution; a privilege which inveſts him with great influence in promoting or oppoſing the ſucceſs of a motion.

The deputies receive, for their attendance, a ſmall ſalary from the public treaſury, which never exceeds five ſhillings a day.

Extraordinary diets are convoked at the requeſt of any foreign court, who will diſcharge the expence of the ſittings, and upon other important emergencies. This extraordinary aſſembly is ſometimes compoſed of all the deputies, at other times of only half the number, in which caſe it is called a half diet; the deputies are choſen in the ſame manner as at the election of a general diet, and its powers are the ſame.

The ariſtocratical party is ſtill further ſtrengthened by the power delegated to the congreſs; an aſſembly formed by the three chiefs, and three deputies from each league. In the Grey League theſe deputies are nominated by the Landrichter; in each of the other leagues they are choſen by rotation from the communities.

This congreſs generally meets in February or March at Coire; for which reaſon the chief of the League of God's Houſe is preſident; its office is to receive the votes of the ſeveral communities, relative to the queſtions referred to their deliberation at the laſt diet, and to communicate to each the reſult of the general deciſion. Whenever the anſwer of a community is not clearly worded, the congreſs determines the meaning of the vote, and this circumſtance gives an opening to much intrigue. For, if the leading perſons in any community do not chooſe to form a poſitive deciſion, they have it obſcurely worded, provided they are certain that a majority of the congreſs will affix that interpretation which they deſire. This aſſembly iſſues decrees to the ſubject countries: if ſuch decrees are agreeable to the governors, they carry them into execution; but if otherwiſe, and they can ſecure a majority at the approaching diet, they reject them, alleging that congreſs has exceeded its power. The three chiefs, as well as each of the other members of the congreſs, receive as a defrayment of their expences 54 florins, or about £4.

The three chiefs aſſemble regularly three times in the year at Coire, and, upon any emergency, may be alſo ſummoned by the chief of the League of God's Houſe. The principal meeting is in the month of May, when they write circular letters to the ſeveral communities, concerning the queſtions which are to be laid before the general diet. All the circular letters are written in German, and are tranſlated into Italian or Romanſh by the notaries of the diſtrict where thoſe languages are ſpoken; all public acts and documents are compiled in German; at the diet all bills are propoſed in that language, but the deputies who do not underſtand German may ſpeak Italian *.

Thoſe

* Of all the conſtitutions in Switzerland, that of the Griſons was the moſt democratic, and ſeemed to contain many of the eſſential characteriſtics conſidered by the French as conſtituting a perfect form of repreſentative

Thoſe theoriſts, who are ſo anxious to reform the Engliſh Houſe of Commons by tranſferring to *the people at large* the election of their repreſentatives in parliament, might, on examining with attention the features of the Griſon diet, fondly imagine, that an *annual* aſſembly, in the choice of whoſe members *every male* of the ſtate has a vote, and which, in all material occurrences, is liable to *be directed by its conſtituents*, muſt *neceſſarily* be the pureſt ſanctuary of general freedom. In this inſtance, however, their conjectures are by no means conſonant to fact and experience; as corruption and influence are not in any national parliament more conſpicuous than in the diet of the Griſons.

For although, in general, thoſe deputies, *annually choſen by every male of a ſtated age, are ſubject to be controuled in their votes by written orders from their conſtituents*, yet they frequently contrived to elude this reſtriction. Sometimes the inſtructions are drawn up, with the conſent of the community, under the ſole direction of the deputy himſelf; at other times, an exemption from poſitive inſtructions, and the power of voting at his own pleaſure, is purchaſed by the deputy from his conſtituents. Sometimes again, the deputy, although he cannot gain either of theſe points, has ſtill ſufficient addreſs to get his inſtructions ſo obſcurely worded as to admit a doubtful interpretation.

By various intrigues of this kind the greater part of the deputies ultimately acquire the power of voting as they pleaſe; and as they chiefly obtain this power by corrupting their conſtituents, moſt of them in return ſell their vote to the leading members of the diet; for moſt queſtions are carried, and moſt cauſes decided, by bribery. Nor can it well be otherwiſe, when the electors are perſons in needy circumſtances; and the members, who have purchaſed their ſeats, are not themſelves exalted by their poſſeſſions above temptation.

preſentative government, ſuch as primary aſſemblies, annual elections, univerſal ſuffrage, and general eligibility. Yet the French no leſs attempted to democratiſe the moſt democratic conſtitution on earth, and proved that poſſeſſion, and not reform, was their object. It was not difficult to excite tumult and inſurrection among a people divided into factions, and turbulent from the popular nature of their conſtitution.

As early as 1790, the agents of France were induſtrious in diſſeminating the new principles, but the great body of the people were averſe to all innovation. At length, in 1794, a ſociety of Griſon Jacobins induced the people to aboliſh the ancient form of goverment, to ſubſtitute a National Convention in the place of the General Diet, and to throw themſelves under the protection of France; and this revolution was accompanied with the uſual horrors of pillage, baniſhment, and bloodſhed.

This precarious tenure, however, did not ſatisfy the French rulers, who coveted the poſſeſſion of a country, which commanded the paſſes of Switzerland and the Tyrol; and Bonaparte had no ſooner concluded the armiſtice with the Emperor, than he diſmembered the Valteline, Chiavenna, and Bormio, and annexed them to the Ciſalpine republic. This perfidious conduct unveiled the ambitious deſigns of France, inflamed the reſentments of the people againſt their Jacobin leaders; and the anti-revolutionary party began to recover their aſcendancy. The proceedings of the French in revolutionizing Switzerland, and the cruelties committed in the ſmall cantons, particularly the maſſacre of Underwalden, excited general horror, and the people, inſpired by the approach of an Auſtrian army, rejected the mandate of the French directory to incorporate themſelves with the Helvetic Republic, one and indiviſible, re-eſtabliſhed the ancient government, drove out the agents of France, recalled the exiles, decreed a defenſive armament under the command of M. de Salis of Marſchlins, and gave notice to the court of Vienna of their intention to claim the number of troops ſtipulated by the capitulation of Milan.

General Schawembourg inſtantly marched fifteen thouſand troops to the frontiers of the Griſons, on the ſide of Sargans, and prepared, with the aid of the French party, to regain poſſeſſion of the country. The inſurgents ſecretly aſſembled on the night of the 5th of October at Mayenfeld and Malantz; but the conſpiracy being detected, the alarum-bell was ſounded, the Jacobins were diſarmed, ten thouſands peaſants flew to the defiles, and the regents, equally diſregarding the threats and promiſes of the French reſident, demanded the aſſiſtance of the Emperor, and committed the defence of their country to an Auſtrian army.

On the renewal of hoſtilities between France and Auſtria, the country of Griſons became the ſcene of bloody conteſts, and was alternately occupied by both armies; but is now (1801.) in the poſſeſſion and under the power of France.

Thus

Thus the leading members ſecure an unbounded ſway in the affairs of the diet; but ſtill it ſhould ſeem, that whatever influence they may obtain by corrupting the deputies, yet, as the diet does not in many caſes decide finally, they could not acquire the ſame authority in thoſe concerns which muſt be referred to the determination of the communities at large. Here at leaſt we might expect the unbiaſſed ſenſe of the majority of the people. But it may be univerſally remarked, that the delegation of deliberative authority to the people at large, unavoidably tends to introduce an actual, though not an acknowledged, ariſtocracy. For a *numerous* populace ſummoned to determine upon political, legiſlative, and judicial queſtions, *far above their comprehenſions*, muſt reſign themſelves to the direction of more informed men, eſpecially when aided by the recommendation of ſuperior wealth. The deputies being generally the chiefs of thoſe communities which they repreſent, have the principal influence, and eaſily find means to incline the opinion of the people to the ſide which they have eſpouſed. In fact, without this ariſtocratical influence, the exceſs of freedom would degenerate into anarchy, and public deliberations be attended with endleſs diſputes and factions.

If therefore corruption and ariſtocratical influence alone diminiſh factions and prevent anarchy in ſo poor a country as that of the Griſons, and in a republic ſcarcely known among the nations of Europe; to what a dreadful exceſs muſt the ſame evils prevail, if the *ſame* mode of electing, and giving inſtructions to, members of parliament, ſubſiſted in a kingdom like England, where riches and luxury are continually advancing with ſuch rapid ſtrides, where the moſt important political and commercial debates are agitated without reſtraint, and where the deciſions of public affairs frequently affect the peace and intereſts of all Europe.

Theoretical reaſoners may, indeed, attempt to prove, that the beſt method of preventing corruption is to augment the number of electors, from the chimerical idea, that *large numbers* cannot be bribed. But if we appeal from uncertain theory to more certain experience, we ſhall find that this argument is contradicted by the hiſtory of all ages. Among the Grecian republics, thoſe commonwealths in which the magiſtrates were choſen by the *people at large*, were the moſt venal. Among the Romans, the moſt effectual means which Julius Cæſar, the ableſt politician of his age, employed to ſubjugate his country, was to extend the privileges and votes of Roman citizens to *all* the inhabitants of Italy. The members of the Poliſh diet *, which is no leſs venal than the diet of the Griſons, are choſen by needy and *numerous* electors, of whom far the greater part poſſeſs no property; and whoſe *numbers*, inſtead of preventing, neceſſarily tend to increaſe influence and corruption †.

LETTER

* See Travels into Poland, Ruſſia, &c. Vol. I. b. 1. c. vi. & viii.

† If inſtances were wanting to juſtify the truth of theſe obſervations, the French revolution will afford an uncontrovertible example. The great and leading features of their repreſentative form of government, which was to give happineſs and peace to mankind, were, as in the Griſon diet, annual elections, univerſal ſuffrage, and general eligibility without any qualification. The conſequences have been venality, perſecution, anarchy, and univerſal ſpoliation, which have ultimately terminated in deſpotiſm. Fortunately the great majority of the Engliſh nation are fully convinced that the abſurdity of realiſing the ſpecious notion of a reform in parliament is proved by experience, and that univerſal ſuffrage, annual elections, and general eligibility without qualification, would be attended with the ſame fatal effects which they produced in France.

The French having, in the commencement of the revolutionary career, made every thing ſubſervient to perſonal liberty, and conſtituted their fabric of government on the baſis of univerſal ſuffrage, are now hurrying into the contrary extreme, and in the new metaphyſical ſyſtem the rights of property are alone conſidered.

LETTER LXXXVI.—*Valley of Sopra Selva.—Ilants.—Truns.—Diſentis.—Tavetch.*

IMPATIENT to return to England, after ſo long an abſence from my friends, I yeſterday morning quitted Coire, paſſed by Embs, and over the bridge of Richenau, which I again ſtopped to admire, as it boldly projected over the Rhine. I then rode along the ſide of the mountains which ſeparate the Griſons from the canton of Glarus, went through Tamins, and left Flims on my right, ſituated about a quarter of a mile from the road, in a pleaſant plain. The houſes of theſe towns are not ſcattered like thoſe of Davos, but ſtand in ſeparate cluſters, reſembling the burghs of Engadina. Having traverſed thick foreſts of pines, and a very wild country, richly diverſified with grain and paſture, I deſcended to the deep bed of the Rhine, and croſſed it to Ilants.

Ilants, the capital of the Grey League, is a ſmall town, containing about ſixty houſes, and partly ſurrounded by walls; a circumſtance which ſerves to diſtinguiſh it, as it is the only walled town, excepting Coire, in this country. It is alſo remarkable as the place where the general diet of the three leagues aſſembles every third year. The adjacent country is fertile in every ſpecies of grain and paſture. The points of view are uncommonly fine, exhibiting a ſmall plain ſkirted by cultivated mountains, and backed by a ridge of barren rocks which bound the valley of Lugnetz. The Romanſh, which is ſpoken in theſe parts differs conſiderably, both as to pronunciation and orthography, from that of Engadina. By the aſſiſtance of ſome perſons to whom I had letters of recommendation, I procured ſeveral books in the dialect of this league; theſe, in addition to others I obtained in Engadina, have ſo conſiderably ſwelled my travelling library, that if I continue to increaſe the collection, I muſt hire an additional horſe for the purpoſe of carrying my baggage of information.

This tract of country, ſtretching from Reichenau to the mountain of St. Gothard, is called the valley of Sopra Selva, and is the moſt populous part of the Grey League.

Quitting Ilants, I purſued my route at the foot of the mountains, through a plain covered with paſture and foreſt by the ſide of the Rhine, which is rapid and ſhallow; and paſſed through a rocky country, continually aſcending and deſcending amid large tracts of foreſt. I croſſed the Rhine ſeveral times during the laſt four or five miles: that river formed repeated cataracts, as I judged from the roaring ſound, for the evening was ſo dark that I could not diſtinguiſh any object.

I arrived late at Truns, remarkable in the hiſtory of this country, as the place where the independence of the league was firſt ratified, and an alliance concluded between the chiefs and the communities. An aged oak ſtill exiſts, under which, according to tradition, the three chiefs confirmed the liberties of the league; and near it a chapel, whoſe walls are painted with a repreſentation of the ceremony.

My curioſity led me to the town-houſe, in which the diet of the Grey League is annually aſſembled. The room is well adapted for the purpoſe, and is handſomely painted with the arms of the Landrichters, beginning from thoſe of John of Lambris, the firſt

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Roederer, one of the principal ſupporters of democracy in the early periods of the revolution, alluding to the evils of univerſal ſuffrage, which he calls the extenſion of the elective franchiſe, has recently declared "that it could produce nothing but the invaſion of the republic by beggars, the ſubverſion of the conſtitution, and an anarchy regularly organiſed;" and in ſpeaking of frequent elections, he alſo obſerves, "How could men hazard ſuch a meaſure as that of annually agitating a maſs of thirty millions of men?"

perſon appointed to that office when the Grey League was formed. From this place of meeting the aſſembly is always called the Diet of Truns. It conſiſts of the ſame twenty-ſeven deputies who are appointed for the general diet of the three leagues, the two Landrichters, the abbot of Diſentis (the repreſentative of the Houſe of Auſtria) as baron of Retzuns, and the temporary Cau de Sax. All affairs relating to legiſlation, politics, and finance, which concern the general intereſt of the league, are agitated in this aſſembly, and the queſtions decided by the majority of voices.

At the ſame place is alſo a court of appeal, compoſed of ſixteen * deputies, and the Landrichter, who has the caſting voice; it decides in the laſt reſort all civil cauſes above a certain ſum, brought from the deciſion of the civil courts in the communities of the Grey League.

Diſentis, from whence I am now writing, takes its appellation from an abbey of that name, whoſe abbot was formerly ſovereign over this part of the Grey League, and who, although he has ſuffered a diminution of his prerogatives, yet, as one of the chiefs of the league, ſtill poſſeſſes no inconſiderable influence in the general adminiſtration of affairs. At the diet of Truns he not only votes, but has ſuch weight, that few acts can paſs in oppoſition to his will. In the court of appeal, although he is not preſent, he may be ſaid to poſſeſs four votes, as the four deputies from the High Juriſdiction of Diſentis are generally nominated through his intereſt. Nor is his aſcendancy confined to the Grey League: by the nomination of the Landrichter every third year, he ſecures four † votes in the congreſs for that ſitting, and has alſo much power in the general diet of the Griſons, by his influence over the deputies of the Grey League. His preſent revenue is very ſmall, ſcarcely amounting to £100 per annum; in addition he receives a penſion from the Houſe of Auſtria, which is intereſted to ſecure his concurrence. He is choſen by the Benedictine monks, who compoſe the chapter, and is a prince of the German empire.

The abbey, ſituated upon the ſide of the mountain, is a large quadrangular building, and makes a magnificent appearance from the village. I was much diſappointed that the abbot was not in the country; I had the pleaſure of meeting him at Coire, and found him a perſon of conſiderable information. I no less regretted his abſence, becauſe he had in his poſſeſſion the key of the archives, which are ſaid to contain ſeveral curious records of high antiquity. The monks, who politely accompanied me over the abbey, were able to give me little intelligence. Beſides the great church, they carried me to a ſmall chapel, eſteemed the moſt ancient in the whole country of the Griſons. Being previouſly informed that books in the Romanſh tongue, for the uſe of the Roman

* Theſe deputies are taken from the eight High Juriſdictions of the Grey League, in the following proportions:

From Diſentis	4
Grüb	2
Lugnetz	2
Waltenſberg	3
Rheinwald and Schams	2
Retzuns	1
Tuſis	1
Maſox	1
	16

† He propoſes for Landrichter three candidates, from whom one is nominated by the deputies, but the latter always elect the perſon he recommends; and as the Landrichter appoints the three deputies to the congreſs, and is himſelf a member of the ſame aſſembly, the abbot may juſtly be ſaid in that year to influence *four* votes in the congreſs.

Catholics,

Catholics, are frequently printed in the abbey, I procured ſeveral from the monks, particularly a vocabulary of the Romanſh ſpoken in the valley of Sopra Selva.

Diſentis is a ſtraggling village lying upon a gentle declivity, which ſlopes gradually from the foot of the mountains to the banks of the Rhine. The ſides of the mountains are clothed with groves of firs and ſmall birch; the lower parts yield rich paſture, a ſmall quantity of wheat, rye, and millet. Oppoſite Diſentis is the valley of Medels, from which deſcends a torrent called the Middle Rhine, and joins the upper branch that flows from the chain of the St. Gothard.

The communities of Diſentis and Tavetch, which form a High Juriſdiction, occupy the weſtern extremity of the valley of Sopra Selva, ſtretching as far as the confines of Uri. The whole body of people aſſemble every two years at Diſentis, in the open air, for the choice of the Landamman, and for the confirmation of their magiſtrates, as well as for the purpoſe of enacting laws; they nominate alſo to the governments of the ſubject provinces. The courts of judicature are eſtabliſhed at Diſentis, and the judges choſen by the people in the ſeparate diſtricts. The general adminiſtration of affairs is entruſted to a council of ſixteen, which gives inſtructions to their deputies ſent by the two communities to the general diet of the three leagues. The Landamman is preſident, and has the caſting voice. The abbot enjoys the privilege of being preſent at all political queſtions, and of giving his vote; he has conſiderable influence in theſe communities. Formerly the fines for criminal offences belonged to him; but one of his predeceſſors having diſpoſed of that right, they are now divided among the judges.

September 30th.

I QUITTED Diſentis this morning, and in about two hours entered the pleaſant valley of Tavetch, lying at the foot of the Alps which ſeparate the Griſons from the canton of Uri. The villages are numerous, and conſiſt of ſcattered cottages chiefly conſtructed of wood, reſembling the Swiſs hamlets in the ſmall cantons. I met many large herds of cattle juſt deſcended from the higher Alps, and driving towards the fairs of Tirano and Lugano.

The valley of Tavetch produces paſture, hemp, and flax, and a ſmall quantity of rye and barley; the trees are chiefly firs and pines, and their number gradually diminiſhes towards the extremity of the vale. From Tavetch I aſcended a narrow path, and paſſed through Selva and Cimut, the laſt village in the country of the Griſons, where I took my farewell of the Romanſh. The country became more and more wild as I aſcended; and the Upper Rhine gradually diminiſhed as I approached its ſource. A little beyond Cimut I came into a ſmall plain of paſture, watered by two ſtreams which unite and form the Upper Rhine. I once intended to viſit the ſource of the principal ſtream, that precipitates from mount Badus; but finding, upon inquiry from the inhabitants of Selva, that it would employ at leaſt five hours; as the day was far advanced, and my late illneſs has diſqualified me for ſuch fatiguing journeys, I prudently purſued my route to Urſeren. At Cimut, a peaſant, who had frequently viſited the ſpot, informed me, that the chief ſource of the Rhine deſcends from a glacier upon the ſummit of the Badus, and forms a piece of water about half a mile in circumference, called the lake of St. Thomas; from this lake a torrent precipitates itſelf down the mountain, and being joined by many ſprings and currents, forms the larger of the two ſtreams, which unite in the above-mentioned plain. From this plain I aſcended by the ſide of the ſmaller ſtream, until I traced it falling from a glacier cloſe to the confines of the canton of Uri. The aſcent, though abrupt and craggy, was not ſo difficult as the paſ-

ſage of the Braglio or the Muret. Theſe Alps produce no trees, but are covered to a great height with herbage.

After two hours continued aſcent from the valley of Tavetch, I reached the higheſt point of the chain which ſeparates the country of the Griſons from the canton of Uri; a few paces further I paſſed a poſt without an inſcription, which marks the boundary between the two reſpective territories. Soon afterwards I arrived at a lake of an oblong ſhape, a mile and a half in circumference, formed principally by a torrent that falls from the northern ſide of the ſame chain which gives riſe to the Rhine; the lake ſupplies a ſtream that may be called one of the ſources of the Reuſs. I followed it as it flows through a narrow plain, until I came to a ſteep deſcent, where the beautiful valley of Urſeren ſuddenly burſt upon my view.

LETTER LXXXVII.—*General Idea of the Courts of Juſtice.—Religion.—Revenues.—Population.*

DURING the courſe of my correſpondence I have occaſionally mentioned the judicial proceedings in ſome of the communities. I ſhall here remark in general, that throughout the three Leagues the Roman law prevails, modified by municipal cuſtoms. The courts of juſtice in each community are compoſed of the chief magiſtrate, who preſides, and a certain number of jurymen choſen by the people: they have no regular ſalary, but receive for their attendance a ſmall ſum, ariſing in ſome communities from the expences of the proceſs, which are defrayed by the criminals, in others from a ſhare of the fines. They enjoy the power of pardoning or diminiſhing the penalty, and of receiving a compoſition in money. This mode of proceeding ſuppoſes, what is as abſurd in theory as it is contrary to experience, that judges will incline to mercy when it is their *intereſt* to convict; or will impartially inflict puniſhment even when injurious to their own private advantage.

The priſoners are examined in private, and frequently tortured for the purpoſe of forcing confeſſion, when the judges either divide the fines, or remit the puniſhment for a compoſition. In ſome diſtricts a criminal trial is a kind of feſtival to the judges, for whom a good repaſt * is provided at the expence of the priſoner, if convicted: thus the alluſion in Garth's Diſpenſary, applied with more wit than truth to our courts of juſtice, is literally fulfilled:

"And wretches hang, that jurymen may DINE."

Capital puniſhments, however, are extremely rare; a circumſtance ariſing not from any peculiar lenity in the penal ſtatutes, or a propenſity to mercy in the judges; but becauſe the judges draw more advantages from fining than executing an offender. In a word, to uſe the expreſſion of Burnet, which is no leſs true at preſent than in his time, "Many crimes go unpuniſhed, if the perſons who commit them have either great credit or much money."

It is remarkable that torture is more frequently applied, and for ſmaller delinquencies, in theſe independent republics, than in the ſubject provinces. The infliction of it depends entirely upon the arbitrary will of the judges, a majority of whom may order it for an offence which by the ſtatutes is not capital, nor even puniſhable by corporal penalties. Thus it is not uncommon, in thoſe communities where fines are divided

* A ſpecific ſum is allowed for the expence of the dinner, amounting in general to about 48 florins.

among

among the judges, to torture women of looſe conduct, for the purpoſe of compelling them to confeſs with whom they have been connected; for as ſuch offences * are puniſhable by fine, the more perſons are convicted, the larger ſhare of money is diſtributed among the judges. Even in the diſtricts where the fines are paid to the community, torture is often no leſs wantonly inflicted; becauſe, when the priſoner is not found guilty, the expences of the proceſs fall upon the public, and the judges receive leſs emolument.

Even in the civil courts moſt cauſes are decided by bribing the judges; and appeals, in thoſe communities wherein they are admitted, ſcarcely ſerve any other end than to enlarge the ſphere of corruption. Coire and a few other places are excepted from this general reflection. This deſcription comprehends the courſe of juriſprudence throughout the Griſons: how then can it be expected that the governors of the ſubject provinces ſhould impartially adminiſter juſtice, where their power is enlarged, and where they enjoy greater means of enriching themſelves?

Before I cloſe the account of the courts of judicature, it may be neceſſary to mention the *Straffgericht* †, or public chamber of juſtice, which was eſtabliſhed upon particular occaſions, and in the moſt alarming criſis of affairs, by the conſent of the general diet; and which, during its ſittings, had juriſdiction over the three leagues. It was chiefly held in caſes of high treaſon, and is thus juſtly deſcribed by Burnet: "There is a part of this conſtitution that is very terrible, and which makes the greateſt men in it tremble: the peaſants come ſometimes in great bodies, and demand a chamber of juſtice from the general diet; and they are bound to grant it always when it is thus demanded, which comes about generally once in twenty years. Commonly this tumult of the peaſants is ſet on by ſome of the malcontented gentry, and generally there are a great many ſacrifices made. This court is compoſed of ten judges out of every league, and twenty advocates, who manage ſuch accuſations as are preſented to them. This court is paramount to law, and acts like a court of inquiſition; they give the queſtion, and do every thing that they think neceſſary to diſcover the truth of ſuch accuſations as are preſented to them; and the deciſions of this court can never be brought under a ſecond review: though there is an exception to this, for about a hundred years ago, one court of juſtice reverſed all that another had done; but that is a ſingle inſtance."

Theſe meetings, very uſual in the laſt century, were always attended with ſuch dreadful effects as nearly to endanger the republic. The preſent generation, grown wiſer by experience, and either aware of the dreadful effects of ſuch licentious proceedings, or leſs agitated with inteſtine diſſenſions, have never had recourſe to theſe ſanguinary meaſures: accordingly theſe courts are now fallen into diſuſe, and may be conſidered as obſolete, although not aboliſhed by public authority.

The religion of the Griſons is divided into Catholic and Reformed, the only perſuaſions tolerated in this country. By the Reformed is meant what we call Calviniſm,

* In many of the communities, incontinence between married perſons is puniſhed by a fine of 200 florins.

A married and ſingle perſon	150
Perſons unmarried	100

A pound ſterling is equal to about 13½ Griſon florins.

† Paſchal, the French ambaſſador from Henry the Fourth to the Griſons, gives, in his *Rhætica Legatio*, the following definition of a Straffgericht: *Straffgerichtum eſt is hominum, paucis exceptis, impetitorum, ac truculentorum conceſſus, qui rebus turbidis a motâ, et laſciviente, multitudine educitur in hoc, ut ſæviat in perſonas, et fortunas eorum, quos vel ſuo pravitas, ſi facinoroſi homines ſint, aut ſi boni, ſua infelicitas, his duris capitibus mactandos objicit: igitur ea omnia ibi aſpere et violenter ex rumore et libidine plebis et partis iratæ agit, hanc ſæviendi actionem jamdiu occupantis.*

although

although it is not the ſame as was eſtabliſhed at Geneva. For, as the reformation was introduced into this country by the diſciples of Zuingle, the religion of the Proteſtant Griſons bears a greater reſemblance to that ſettled at Zurich, than to the church of Geneva; although the difference between the two ſects is extremely trifling. Among the Griſons the Proteſtants are more numerous than the Catholics, being eſtimated as about two thirds of the inhabitants; and Stanyan juſtly aſſerts *, that, "as all their elections are decided by the plurality of voices, the republic of the Griſons may be deemed a Proteſtant ſtate."

The reformation was introduced very early: the new doctrines were firſt preached about the year 1524, and received at Flæſch, a ſmall village in the Ten Juriſdictions, upon the confines of Sargans: from thence they were extended to Mayenfield and Malantz, and ſoon afterwards through the whole valley of Pretigau. The reformed opinions ſpread with ſuch celerity, that before the end of the ſixteenth century they were embraced by the whole league of the Ten Juriſdictions, (excepting part of the community of Alvenew,) the greater part of the Houſe of God, and a few communities in the Grey League.

The difference of religion nearly excited a civil war between the two ſects, as well at the firſt introduction of the reformation, as at the beginning of the troubles in the Valteline, where the two parties roſe in arms; but the Catholics being overpowered by the Proteſtants, matters were amicably adjuſted. Since that period, all religious concerns have been regulated with perfect cordiality. According to the general conſent of the three leagues, each community, being abſolute within its little territory, has the power of appointing its own mode of worſhip, and the inhabitants are free to follow either the Catholic or Reformed perſuaſion. In the adminiſtration of civil affairs religion has no interference, the deputies of the general diet may be members of either communion. By this moderate and tolerating principle all religious diſſenſions have been ſuppreſſed, and the moſt perfect amity ſubſiſts between the two ſects.

In ſpiritual concerns the Catholics for the moſt part are under the juriſdiction of the Biſhop of Coire. For the affairs of the Reformed churches, each league is divided into a certain number of diſtricts, the miniſters whereof aſſemble twice every year: theſe aſſemblies are called *colloquia*. Each *colloquium* has its preſident, and each league a ſuperintendant, called a dean. The ſupreme authority in ſpiritual concerns is veſted in the ſynod, which is compoſed of the three deans, and the clergy of each league; the ſynod aſſembles every year alternately in each of the three leagues. Candidates for holy orders are examined before the ſynod. The neceſſary qualification for admiſſion into the church ought to be the knowledge of Hebrew, Greek, and Latin; but this rule is not ſtrictly adhered to, many being ordained without the leaſt acquaintance with either of thoſe languages. Formerly Latin was ſolely uſed, as well in the debates of the ſynod as for the purpoſe of examining the candidates, but at preſent that tongue grows more and more into diſuſe, and German is employed in its ſtead.

The number of reformed pariſhes in the whole three Leagues amounts to one hundred and thirty-five. In the Grey League forty-ſix, in that of God's Houſe fifty-three, and in the League of Ten Juriſdictions thirty-ſix. The miniſters of theſe churches enjoy very ſmall ſalaries. The richeſt benefices do not perhaps yield more than £20, or at moſt £25 per ann. and the pooreſt ſometimes ſcarcely £6.

This ſcanty income is attended with many inconveniences. It obliges the clergy, who have families, to follow ſome branch of traffic, to the neglect of their eccleſiaſtical

* State of Switzerland, p. 228.

ſtudies, and to the degradation of the profeſſional character. Another inconvenience is ſuperadded to the narrowneſs of their income. In moſt communities the miniſters, though confirmed by the ſynod, are choſen by the people of the pariſh, and are ſolely dependent on their bounty.

For theſe reaſons the candidates for holy orders are generally extremely ignorant; they cannot ſupport that expence which is requiſite to purſue their ſtudies; they are not animated with the expectation of a decent competence, and, from the dependent mode of their election, are not encouraged to deſerve their promotion by a conſiſtent dignity of character. But there are not wanting a few men of great knowledge and eminence, as well in their profeſſional ſtudies as in other branches of polite learning. Beſide Aporta, whom I look up to as a kind of phænomenon in the literary world, I have met with two or three clergymen who are greatly diſtinguiſhed for their erudition, and who would do credit to any church.

It is remarkable, that the liturgies of theſe reformed churches are not exactly the ſame; a diverſity owing to the independence of ſo many ſmall commonwealths, which are abſolute within their little territories in all concerns that do not affect the political union of the three Leagues. The churches of the German communities uſe the liturgy of Zuric; but as this form of prayer was amended in 1766, ſome of the miniſters admit the new, and others ſtill retain the ancient liturgy.

Stephen Gabriel, paſtor of Ilants, a perſon of great learning, in the beginning of the laſt century tranſlated into the Romanſh of the Grey League the liturgy of Zuric; and the ſame form of prayer is uſed in the Upper and Lower Engadina, adapted to their reſpective idioms *. The miniſters of the Italian churches employ a tranſlation of the Genevan liturgy †.

The old ſtyle is in uſe among the Proteſtants, the new ſtyle among the Catholics ‡: a few years ago an attempt was made to introduce the latter among the Proteſtants. The inhabitants of Pregalia admitted it; and thoſe of Upper Engadina offered alſo to receive it, if the town of Coire would ſet the example. Its admiſſion, however, being ſtrongly oppoſed from religious ſcruples, it was abſolutely rejected, and the inhabitants of Pregalia again adopted the old ſtyle.

The revenues of the three Leagues ariſe from the following articles:

1. The duties upon the merchandiſe which paſſes through the Griſons, the Valteline, and Chiavenna; they are farmed at the annual rate of 17,000 florins, or about £1259. 2. A third of the fines laid upon delinquents in the ſubject countries; the fluctuating ſtate of this article cannot be aſcertained. 3. A tribute of 500 philips § from the Valteline, and 100 from Chiavenna. 4. A ſmall fund, the principal part of which is only £4000, veſted in the Engliſh ſtocks.

The public expenditure is very trifling, being chiefly confined to the expences incurred by the ſittings of the diet, and the ſalary aſſigned to the deputies for their attendance.

Beſides this public treaſury, each League has a fund. The penſions received from foreign powers are paid annually at the meeting of the diet, when they are equally divided between the three Leagues, and each deputy diſtributes the ſhare to the community which he repreſents.

* For the Romanſh ſpoken in Upper and Lower Engadina, ſee Letter 90.

† In 1749 a new ſervice was introduced into the churches of Pregalia; but, on account of its length, ſoon fell into diſuſe.

‡ I am informed, that ſince my departure from the Griſons the new ſtyle has been adopted by ſeveral Proteſtant communities.

§ A philip = 5s.

Many

Many diſputes have occaſionally riſen among the Griſons in regard to the power of coining, and ſeveral of the communities have aſſerted their claim to the exerciſe of that right. The fact is, that each community might doubtleſs coin money, and order it to be taken within its own little territory; but as it would not paſs in the other parts, the right is merely nominal. According to the general conſent of the three Leagues, this privilege is veſted in the town of Coire, in the biſhop, and in the baron of Haldenſtein *. No money is, however, ſtruck in the Griſons, excepting a ſmall copper coin called blutſger, which is ſomewhat leſs than a halfpenny. The gold and ſilver current in the country is chiefly Auſtrian and French.

From the beſt information which I have been able to collect, the population of the Griſons may be thus eſtimated:

The Grey League contains	54,000	ſouls.
League of God's Houſe	29,000	
League of Ten Juriſdictions	15,000	
	98,000	

If we add 87,000, the number of inhabitants in the Valteline, Chiavenna, and Bormio, the whole population of the Griſons, and the ſubject countries, will amount to only 185,000 ſouls; and, allowing for deficiencies, will ſcarcely exceed 200,000.

LETTER LXXXVIII.—*Commerce of the Griſons.—Canal of the Adda.*

THE commerce of the Griſons is extremely contracted; the only exports (excluſive of thoſe from the ſubject provinces) being cheeſe and cattle. They import grain, rice, ſalt, and ſilk ſtuffs, from Milan; grain from Suabia and Tyrol; ſalt from Tyrol and Bavaria, fine cloth, chiefly Engliſh, French, and Sileſian, through Germany; fine linen and muſlins from Switzerland. As the only manufacture throughout the whole country is that of cotton eſtabliſhed at Coire, it is evident that the balance of trade muſt turn conſiderably againſt them. They are enabled to ſupport this deficiency by means of the eſtates which the Griſons poſſeſs in the ſubject provinces, by the ſums which the governors draw from thoſe provinces, by public and private penſions from France and Auſtria, by money ſaved in foreign ſervices, and by the duties upon the merchandiſe paſſing through their territories.

As moſt of the Griſon peaſants weave cloth and linen for the uſe of their families, it would be no difficult undertaking to introduce manufactures in different parts. But in theſe little republics a ſtrange prejudice prevails againſt commerce, and the project of eſtabliſhing manufactures is oppoſed by many leading men of the country. It is difficult to diſcover the occaſion of theſe illiberal principles; it has been imputed to a ſuſpicion, that if the people ſhould become opulent by commerce, they would be leſs open to influence, and the powerful families, who now direct the public affairs, would loſe their aſcendancy. Beſides theſe reaſons, which are of too delicate a nature to be openly acknowledged, other motives of a more generous complexion have been aſſigned.

The advocates for limiting commerce aſſert, that as the true riches of every country conſiſt in the produce of agriculture, all occupations, which draw the attention of the people from that great object, are detrimental to the general good of ſociety: in free

* And I believe in the abbot of Diſentis.

ſtates particularly, manufactures tend to enervate the inhabitants, to introduce luxury, to depreſs the ſpirit of freedom, and to deſtroy the general ſimplicity of manners.

Theſe arguments, however ſpecious in appearance, will prove fallacious upon mature conſideration. If in a country, which ſubſiſts chiefly by agriculture, manufactures are purſued to the total neglect of huſbandry, they then become detrimental; but this is ſeldom the caſe; for, by adding to the general conſumption, manufactures uſually tend to increaſe, inſtead of diminiſhing the produce of the earth. Such have been the effects in the mountains of Neuchatel, where the foreſts have been cleared, and the country converted into paſture, or ſown with grain. Manufactures and commerce are ſtill farther ſerviceable in augmenting the number of inhabitants, which form the true riches of a country. For whenever conſtant opportunities of employing a number of men occur, children will not be a burden to the peaſants, and population will increaſe; which cannot happen in diſtricts affording little employment.

With reſpect to the Griſons in particular, their territory being entirely mountainous, will not yield ſufficient produce for interior conſumption, conſequently ſome means of ſupplying the deficiency muſt be adopted. Now ſurely it would be far more honourable to purſue commerce, even if attended with ſome unavoidable inconveniences, than to depend for ſubſiſtence on foreign ſubſidies, to oppreſs and exhauſt the ſubject provinces, and to exhibit a regular ſyſtem of venality, which almoſt pervades the whole maſs of people.

Neither does the eſtabliſhment of manufactures tend to enervate the inhabitants, and diminiſh the ſpirit of freedom. In fact, the manufactures in theſe democratical ſtates are by no means ſimilar to thoſe introduced into large towns, where numbers of individuals are collected in the ſame ſpot; on the contrary, the work is divided, and diſtributed among the peaſants, who, with their wives and children, weave the cloth at home. By this method they preſerve (as I had occaſion to remark in the canton of Appenzel) their original ſimplicity of manners, and maintain the ſpirit of freedom, even to a greater degree, than in thoſe parts where there is no commerce. Examples are not wanting among the Griſons themſelves: the natives of Upper Engadina, who are ſo much inclined to trade, are in reality more free and leſs influenced than the people of the other communities; nor is it obſerved, that the inhabitants of the Valley of Pretigau have become more enervated, ſince they have been employed in preparing cotton for the manufactory of Coire. In fact, that kind of occupation does not always take the peaſants from more active employments. In ſummer, they are at leiſure to cultivate the earth, while their wives and children attend principally to the manufactures; during the long winters, which laſt in theſe Alpine regions for ſix months without intermiſſion, agriculture is neceſſarily ſuſpended, and theſe occupations ſucceed the more laborious exertions of the field.

As the principal commerce of the Griſons and the ſubject provinces is carried on acroſs the lake of Como with Milan, I ſhall give an account of the inland navigation, which has been lately eſtabliſhed for the purpoſe of facilitating that commerce; the ſeveral parts of which I had the curioſity to viſit.

The water communication between the country of the Griſons and Milan is formed by the lake of Como, by its branch the lake of Lecco, by the Adda, by the canals of the Adda and Trezzo.

The canal of Trezzo, called alſo *Canalie della Martesana*, begins at Trezzo, ſituated on the Adda, and is carried to Milan. This cut, which is 24 miles in length, commenced in 1457, under the reign of Francis Sforza, and compleated in 1460, did not at firſt ſerve for the purpoſe of navigation more than two days in the week; being principally uſed for overflowing the low grounds with water, neceſſary for the cultivation of rice.

rice. In 1573, during the adminiſtration of the Duke of Aberquerque, Spaniſh governor of Milan, the cut was enlarged, and the body of water ſo much increaſed as to admit the paſſage of veſſels every day.

Still, however, the Adda was not navigable during the whole way between the lake of Lecco and Trezzo; but formed a ſucceſſion of cataracts for the ſpace of a mile. To obviate this inconvenience, a canal was projected, in 1519, but no part was carried into execution, excepting a mole, which was thrown acroſs the Adda. In 1591 the work was undertaken, and the canal completed in 1599. But the ſtream of the Adda was no ſooner admitted into the cut, than the banks broke down, for ſo conſiderable a way, as to render all repairs impracticable. This breach, generally imputed to the violence of the current, was principally owing to the nature of the rock, in which the cut was excavated, and to an error in the original plan. The rock is a compoſition of gravel and ſand, or a ſpecies of pudding-ſtone, of looſe texture and unequal ſolidity; and as the cut was made too near the precipice, which overhangs the Adda, that part of the rock which formed the bank of the canal was not ſufficiently ſtrong to ſupport the weight of water.

From that time the canal was conſidered an impracticable work, and abandoned until a few years ago it was again undertaken by order of the Emperor Joſeph the Second, and carried on with ſuch expedition, as to be finiſhed within the ſpace of three years.

The canal is about a mile in length, and is excavated in the rock which forms the precipitous banks of the Adda. In ſome places the rock has been hollowed to the depth of 100 feet, and the breadth of 200. The fall of water, which is equal to the perpendicular height of about 80 feet, is broken by ſix ſluices: and the water is ſupplied by the ſtream of the Adda; the breadth of the canal is 70 feet.

The expence has already amounted to near £100,000. The engineers, however, ſeem to have fallen into the ſame error which attended the original plan, by forming the cut too near the precipice. In conſequence of this inadvertence, the water lately forced down the banks of the canal; and the damage was not repaired without much difficulty and conſiderable expence. Notwithſtanding the precaution of letting out the ſuperfluous water by flood-gates, there is reaſon to apprehend, that theſe breaches will be frequent; and that the recent labours may be rendered as ineffectual as thoſe of the Spaniards.

But ſhould the canal continue in its preſent ſtate, and the navigation not be interrupted; the advantages will hardly compenſate the expence of making and keeping it in repair. The commerce between the Griſons and Milan is extremely contracted, and if all the merchandiſe which paſſes was conveyed along the canals, the tolls and duties would be very inadequate to the expence.

The navigation, however, from the lake of Como to Milan is attended with many difficulties, and the greater part of the merchandiſe is ſent by land, as the moſt commodious and leſs hazardous way. The current of the Adda is ſo rapid, that the veſſels cannot be towed up without great expence and delay, and is in ſome parts ſo extremely dangerous, that boats are not unfrequently overſet. The only perſons, therefore, who forward their merchandiſe along the Adda and the canals to the lake of Lecco are the contractors, who furniſh the Griſons with corn and ſalt, and who are compelled by the government of Milan to ſend thoſe commodities by water. When it is conſidered that Milan receives from the Griſons only planks, ſtones for building, and coals, but ſupplies them with corn, rice, and ſalt; the articles of export evidently exceed thoſe of import, and the navigation from Milan to the lake of Como is of more conſequence than that from the lake of Como to Milan. The canal of the Adda, therefore, w...

has only facilitated the inland navigation from the Griſons to Milan, and not from Milan to the Griſons, though a work of extreme difficulty, and redounding greatly to the honour of the Sovereign who compleated it, will ſcarcely produce advantages equal to its original coſt and frequent repairs *.

LETTER LXXXIX.—*Alliances of the Griſons with the Swiſs Cantons—France—Venice—and the Houſe of Auſtria.*

THE alliances of the Griſons with foreign powers come next under conſideration.

The Three Leagues, though always eſteemed allies of the Swiſs, yet are not, ſtrictly ſpeaking, in confederacy with all the cantons. In 1497 the Grey League, and in the following year the League of God's Houſe, entered into a perpetual treaty with Zuric, Lucern, Uri, Schweitz, Underwalden, Zug, and Glarus. Although the League of Ten Juriſdictions was not included in the ſame treaty, yet it was afterwards declared that, in conſequence of its connection with the other two leagues, it ſhould be entitled to the ſame aſſiſtance and good offices. The Three Leagues are in cloſe alliance with Bern and Zuric, to whoſe mediation they have frequently had recourſe in points of diſagreement. By theſe treaties the Griſons are called allies of the Swiſs, and, in conſequence of a requeſt from the particular cantons, with which they are united, ought, in caſe of invaſion or rebellion, to be ſupplied with ſuccours from the Swiſs republics.

The Griſons contracted the firſt alliance with France in 1509, during the reign of Louis the Twelfth, and in 1516 were compriſed in the treaty of perpetual peace between Francis the firſt and the Helvetic body. Since that period they have, as occaſion offered, renewed their private confederacy with the kings of France; but where not comprehended in the late treaty of Soleure, concluded between Louis the Sixteenth and the other ſtates of Switzerland. The king of France maintains an envoy in this country, and has two Griſon regiments in his ſervice.

In 1707 a treaty was formed between the Griſons on the one ſide, queen Anne and the United Provinces on the other, for permitting the free paſſage of troops marching into Italy. This is the only alliance by which the Griſons, as a particular ſtate, are connected with England. Our court formerly had a miniſter in the country; but for ſome time the Engliſh envoy to the Swiſs cantons reſident at Bern, has tranſacted buſineſs with this republic.

The Venetians, for the purpoſe of procuring the free paſſage of the Valteline, had often ſolicited an alliance with the Griſons; but their projects were always defeated by the influence of the Spaniſh monarch, who poſſeſſed the Milaneſe; nor were they able to accompliſh their deſign, until the Spaniſh branch of the Houſe of Auſtria became extinct in the perſon of Charles the Second. Soon after that event, when Milan was the object of contention between the emperor and the French, the Venetians obtained the aſſent of the Griſons to a treaty of alliance offenſive and defenſive, which was ratified at Coire the 17th of December 1706. By this treaty it was ſtipulated, among other articles on the ſide of the Venetians, to pay an annual penſion of 711 Spaniſh doubloons, and to furniſh the Griſons, in time of war, with a thouſand Venetian ducats per month; in return, the Griſons agreed to permit the paſſage of the Venetian troops

* The curious reader is referred to the Abbe Friſi's account of the Canals of the Adda, and Trezzo, and of the other navigable canals in the Milaneſe. See *Pauli Friſi Opera, tom.* ii. *Dei Canali Navigabili di Lombardia, 4to. lib* ii. *cap.* 3 4, & 5

through

through the Valteline, and to make a road leading from Morbegno over the mountain of St. Mark into the Venetian territories, by which accommodation merchandiſe might be conveyed to and from Venice to Germany without going through the Tyrol.

This treaty, concluded for twenty years, was to continue in force for the ſame additional period, unleſs one of the contracting parties ſhould withdraw before the expiration of the firſt term; but though obtained by the Venetians with much trouble and expence, it was not long fulfilled by either of the negociating powers. In a few years the Venetians omitted the payment of the annual penſion, and the Griſons neglected to make the road over the mountain of St. Mark. The two republics, however, continued upon terms of amity; and the Venetians, ſoon after the expiration of the forty years, deſirous of renewing the treaty, offered to diſcharge the arrears of the penſion, if the Griſons would open the propoſed communication over the mountain of St. Mark. For this purpoſe an envoy was diſpatched to the Griſons in 1759, and no promiſes were ſpared to promote the negociation: it failed, however, through the influence of the Empreſs of Germany. The Griſons rejected the propoſals of Venice, and ſtill further alienated that republic by the capitulation of Milan. The Venetians, incenſed by this conduct, baniſhed the Griſons who were ſettled within their territories, and all connection is now interrupted between the two republics.

The treaties with the Houſe of Auſtria, as ſovereigns of the Milaneſe, remain to be conſidered. It is not my purpoſe to mention any treaties which the Griſons contracted with the dukes of Milan of the houſe of Sforza, or thoſe by which Philip the Second and his ſucceſſors acknowledged their claim to the Valteline, Chiavenna and Bormio; but I ſhall begin with the celebrated alliance, or, as it is called, the *Capitulation* of Milan in 1639; becauſe it ſuperſeded all others, and eſtabliſhed that cloſe connection between the Griſons and the Houſe of Auſtria, which has ſince continued with little interruption.

The following are the principle articles in this capitulation, concluded between Philip the Fourth, king of Spain, as duke of Milan, and the Three Leagues:—An hereditary and perpetual peace between the two contracting powers. Weekly fairs to be eſtabliſhed in the neighbouring towns of the Milaneſe, in which the Griſons may purchaſe grain, and alſo enjoy a free trade, for the purpoſe of importing and exporting all kinds of merchandiſe and arms, on paying only the accuſtomed duties. A free paſſage through the territories of the Griſons for the Spaniſh troops, with a reſerve, that no more than a company of 150 infantry, and a troop of 60 cavalry ſhall march through the ſame day. Free paſſage of the Griſon troops through the Milaneſe, upon condition that they do not march againſt the allies of Spain, and that more than two or three companies do not paſs at one time. The king may levy at his own expence, in caſes of neceſſity, a body of troops not exceeding 6000 nor leſs than 2000, for his ſervice againſt all his enemies, except the confederates of the Griſons, and particularly the republic of Venice. All Griſon troops in the ſervice of any ſtate or ſovereign, intending to attack the territories of the king of Spain, ſhall be immediately recalled; and all officers and ſoldiers, who enrol themſelves in any foreign ſervice, ſhall be forbidden to invade his majeſty's territories. If the Griſons ſhould be engaged in war, the king obliges himſelf to furniſh, within fifteen days, 2000 infantry and 200 cavalry; but if they prefer aſſiſtance in money, to pay 1000 ſcudi* per month as long as the war laſts; alſo to ſend into the country of Chiavenna ſix pieces of campaign artillery, with ammunition ſufficient for the ſervice of the war. No troops ſhall be allowed to [illegible] through the reſpective territories to the diſadvantage of the two contracting parties.

* A Milaneſe ſcudo = to about 4s. 6d.

To each league the King promiſes an annual penſion of 1500 ſcudi, and alſo to pay for the education of two ſtudents from each league at Pavia or Milan, beſides a donation of ſixty ſcudi to each ſtudent.

All ancient alliances with any other powers are to remain in force on both ſides, particularly the treaty between the Griſons and France; they promiſe, however, not to renew it in caſe of a rupture between the two crowns; and, if renewed, to declare at the ſame time that it is to be ſuſpended during ſuch a rupture, and to contract no alliance with any foreign power to the prejudice of this perpetual peace. Should either party be attacked, the other, without any regard to the ſtipulations in favour of their ancient allies, is bound to give aſſiſtance againſt ſuch invaſion, excepting however on His Majeſty's part, the German branch of the Houſe of Auſtria; if that Houſe ſhould engage in war with the Griſons, for the maintenance of its rights in the territory of the Griſons.

The cauſes which gave riſe to this capitulation, as well as the articles reſpecting the Valteline, having been already related *; it will be neceſſary only to remark, that the Spaniards guaranteed to the Griſons the poſſeſſion of their ſubject provinces, and to the ſubjects the confirmation of their privileges. In caſe of diſſenſion between the Griſons and their ſubjects, the diſpute is to be referred to the mediation of the King of Spain.

This treaty, ſigned at Milan on the 3d of September 1639, by the Marquis de Legnes, governor of Milan, on the part of the Spaniſh King, and on the other by the deputies of the Three Leagues, was preſerved inviolate, and a good underſtanding maintained between the contracting powers, until the extinction of the Spaniſh branch of the Houſe of Auſtria in the perſon of Charles the Second. During the war of the ſucceſſion, which followed his death, the Milaneſe frequently changed maſters, until it was ſecured to the Emperor Charles the Sixth by the peace of Utrecht. Charles had no ſooner eſtabliſhed his power in his new dominions, than he turned his attention to the Griſons, and prevailed upon them to renew the capitulation of Milan. One of the principal arguments which gave ſucceſs to his negociation was the promiſe, not only of continuing the annual penſion, but even of diſcharging the arrears, which amounted to twenty-nine payments.

This new treaty, in which the German branch of the Houſe of Auſtria ſucceeded to the Spaniſh, was concluded on the 24th of October 1726, by Count Daun, governor of Milan, in the name of Charles the Sixth, and the deputies of the Three Leagues. It confirmed and ratified the ancient capitulation of 1639, with a few modifications and additions, of which the principal are: The duties upon corn purchaſed by the Griſons in the Milaneſe are lowered two thirds. The tenth article in the firſt treaty, by which all Griſon troops in the ſervice of any ſtate deſigning to attack the territories of the Houſe of Auſtria are ſubject to immediate recal, is annulled; and the Griſons are free to ſerve any foreign prince in time of war without incurring the breach of this capitulation. The number of ſtudents educated at the expence of the Emperor is increaſed to twelve.

On the 8th of February 1763, this hereditary league was renewed by Count Firmian, in the name of the Empreſs of Germany as ſovereign of Milan, and the deputies of the Three Leagues. By this treaty the capitulations of 1639 and 1726 are ratified, and ſerve as the baſis of the preſent union; they are alſo augmented by the following articles:

See Letter 75.

The

The Empreſs renounces all right to the lake of Chiavenna, together with a ſmall portion of the adjacent territory, and cedes them in perpetuity to the Griſons. The limits between the Milaneſe and the territory of the Griſons are accurately fixed.

In return for this ceſſion, the Griſons agree to erect no fortifications upon the ceded territory, impoſe no new taxes upon the tranſport of merchandiſe, make no new roads, and, according to the former capitulation, no troops ſhall be permitted to paſs to the prejudice of the ſtate of Milan.

The Empreſs promiſes to obtain from the Pope an abolition of ſeveral eccleſiaſtical privileges in the Valteline, highly detrimental to ſociety; to prevent the Biſhop of Como from granting eccleſiaſtical immunities to laymen, who aſſume the clerical dreſs; alſo to correct ſeveral other abuſes, which render the clergy of the Valteline independent of ſecular authority, and in civil and criminal cauſes only amenable to the Biſhop of Como. The weekly fairs for the purchaſe of grain are aboliſhed; and in their ſtead the Houſe of Auſtria agrees to ſupply the Griſons with a certain quantity for themſelves and for the ſubject countries, according to the current price of corn in the Milaneſe. The duties upon merchandiſe exported from the Milaneſe are lowered, and the cuſtoms both in that country and in the territoy of the Griſons are eſtabliſhed upon a permanent footing; for which purpoſe a table of the duties is annexed to the treaty.

At preſent the Houſe of Auſtria directs all the affairs of the Griſons with the moſt unbounded authority. That power has acquired this ſway by regularly diſcharging the public penſions, by holding the leading members of the diet in its pay, by being a guarantee of the Valteline, and mediator in all the diſputes between the Griſons and their ſubjects *.

LETTER XC.—*Languages of the Griſons.—Particularly the Romanſh.—Its antiquity—Origin—and two principal Dialects.*

THE languages of the Griſons are the Italian, German, and Romanſh. The Italian, which is a jargon ſimilar to the Milaneſe dialect, is ſpoken by the inhabitants of Pregalia and Puſchiavo, and in the vallies of Maſox and Calanca.

The German is ſpoken throughout the whole League of the Ten Juriſdictions, a few villages excepted; in the League of God's Houſe, at Avers, Coire, and the four villages; and in the Grey League, at Splugen, Cepina, and other villages of the Rheinwald, at Valts, in the valley of St. Pedro, at Tuſis, Reichenau, Feldſperg, Tamins, Meyerhof, Verſam, and Valendros.

Some of the earlieſt and moſt authentic writers upon the Griſons have aſſerted, that the natives of the Rheinwald ſpeak a Celtic idiom, a language neither German or Romanſh, but more ſimilar to the German; although they are entirely ſurrounded by people of a different tongue, and are neither contiguous, nor have any great intercourſe with the German inhabitants. From this remarkable circumſtance they are led to conjecture, that the natives of the Rheinwald are deſcended from the *Lepontii*, a Celtic nation, and conſidered as the original inhabitants of this country before the influx of the Tuſcans; and they ground the proofs of this aſſertion upon the numerous names

* This intimate connection with the houſe of Auſtria preſerved the Griſons from the ſubjugation experienced by the other ſtates of Switzerland, and the ſecurity of its freedom depends ſolely on the ſtrength of that power to protect them from the arms of France.

of many caſtles which ſeem to be derived from a * Celtic or German origin. This hypotheſis, however, reſts upon a wrong baſis, and is grounded upon two miſtakes. For, in the firſt place, the language of the Rheinwald is German; ſecondly, although the inhabitants of this diſtrict are immediately ſurrounded by perſons ſpeaking the Italian and Romanſh, yet they are within half a day's journey of Roncaglia, Tuſis, and Furſtenau, where German is the common language. It is more probable, therefore, that the Rheinwald was peopled by a German colony, which penetrated into theſe regions in the darker ages, when the Germans iſſued from their foreſts, and ſpread themſelves over part of Europe. With reſpect to the German names of caſtles and towns we may remark, that many of them are corrupted from the Romanſh, that others have been adopted in later times; and, as a proof that the Romanſh is more ancient in this country than the German, the greater part of the mountains, vallies, and oldeſt caſtles, have Romanſh appellations, even in the diſtricts inhabited by the Germans †.

This circumſtance leads me to the conſideration of the Rhetian, or as it is more commonly called the ‡ Romanſh, which is the vernacular tongue among the greater part of the Griſons; a language in former times more extenſively diffuſed than at preſent, being ſpoken at Coire and the adjacent diſtricts, and through the Tyrol, as far as Inſpruck.

I had the good fortune to meet with a German tranſlation of Planta's excellent Treatiſe upon the Romanſh of the Griſons, of which I had before ſeen the original in the Philoſophical Tranſactions for 1775. The peruſal of this treatiſe firſt excited my inquiries; and although I am obliged to differ from the ingenious author in a few inſtances; yet I hold myſelf indebted to him, for having greatly facilitated my reſearches, and for a more accurate knowledge of the ſubject than I could otherwiſe have obtained.

The Romanſh of this country is divided into two principal dialects, the one ſpoken in the Grey League, and the other in that of God's Houſe. Theſe dialects, although materially varying as to pronunciation and orthography, are yet ſufficiently ſimilar in the general arrangement and expreſſions to be compriſed within the ſame inquiry.

It muſt always be extremely difficult to trace the origin of any language; for etymologiſts are too apt to build a favourite ſyſtem, by miſtaking a partial for a general reſemblance; and finding a few ſimilar expreſſions in two languages, which in other reſpects are eſſentially different, conclude them to be derived from the ſame ſtock. The Griſon writers, however, pretend, that the proofs of the antiquity and origin of their language are too well founded to admit of the leaſt doubt. They aſſert that the Rhetian tongue is derived from the Latin, or from a dialect of the Latin; and the arguments upon which they ground their aſſertion may be reduced to three principal heads. 1. The hiſtory of the country; 2. The names of places which have evidently a Latin origin; 3. Its ſimilarity to the Latin, and to other languages derived mediately or immediately from the Latin.

* Cluverius and other authors have erroneouſly ſuppoſed the Gothic and Celtic nations to be the *ſame*, and their language to have given riſe to the Teutonic or German: but the learned tranſlator (Dr. Percy, Biſhop of Dromore,) of Mallet's Northern Antiquities, has eſtabliſhed, beyond a doubt, that the Celtic and Gothic nations were originally different, and that there was not the leaſt affinity between the languages; the Celtic having given riſe to the old Gallic, Britiſh, Erſe, &c. &c. and the Gothic to the German. See Tranſlator's Preface to Mallet's Northern Antiquities.

† The German names adopted from the Romanſh are very numerous; ſuch as *Chur* from *Curia* or *Coire*, *Splugen* or *Spelugen*, *Bregina*, *Tuſis* or *Toſſan*, *Davos*, *Fretigau* or *Rheitigoua*, *Caſtels*, &c.

The following German names are evidently of a very late date: *Furſtenau*, *Furſtenburg*, *Haldenſtein*, *Lichtenſteig*, *Heinzenberg*, *Reichenau*, *Rheinwald*, &c. as will eaſily be allowed by any one converſant in that tongue.

‡ It is called by the natives *Arumaunſh*, *Rumaunſch*, *Remanſch*, *Lingua Romanſcha*.

1. The

1. The hiſtory of the country. Livy, who has given the earlieſt account of theſe Alps, informs us, that, under the reign of Tarquinius Priſcus, a colony of Tuſcans, driven from Lombardy by the Gauls, ſettled in theſe mountainous regions; and the ſame hiſtorian adds, that in his time the Rhetians, who were deſcended from theſe firſt coloniſts, ſtill retained ſome traces of the Tuſcan pronunciation, although vitiated by lapſe of time and change of ſituation.

Since that period, we have no poſitive documents of any ſubſequent emigration; although it is probable, that upon many occaſions in which the Italians quitted their country, they retired to theſe Alps, and mixed with the natives. In ſome of theſe excurſions it is likely, that the inhabitants of Latium, or others, who ſpoke the Latin, or at leaſt a dialect of that tongue, which muſt have had a conſiderable affinity to the Tuſcan, eſtabliſhed themſelves in theſe regions; but whether this ſettlement happened during the invaſion of Haſdrubal, or at any ſubſequent period, cannot be exactly aſcertained.

About the time of the Cæſars, Rhetia became an object of Roman conqueſt; and frequent expeditions were made into theſe parts, until the whole country was reduced to a Roman province, and governed by a prætor reſident at Coire. During that period, many Roman families eſtabliſhed themſelves in theſe Alps, and diffuſed the knowledge of their language. On the decline of the Roman power, Rhetia came under the dominion of the Franks, a German nation; who introduced their own tongue into many places, and in others gave a new turn and modification to the Latin, by the addition of auxiliary verbs, and by the frequent uſe of the articles.

2. The ſecond proof of the derivation of the Romanſh from the Latin, reſts upon the numerous names of mountains, rivers, towns, and caſtles, which evidently ſeem to have a Roman origin. To uſe the words of the eccleſiaſtical hiſtorian *, whom I have ſo often quoted, "Perſons verſed in claſſic antiquity, who travel among the Griſons, will, from the frequency of Latin appellations, conceive that they are paſſing through Latium, Etruria, and Campania. They will trace the ancient names *Ardeates*, *Vettones*, *Sentinates*, *Samnites*, in Ardets, Vettan, Sent, and Samnun. They will meet with mount *Umbria*, the river *Albula*, the towns *Antium*, *Suſa*, *Lavinium*, *Tertium*, *Scaptia*, *Silium*, *Cornetia*, and many others; derivations ſo plain and ſo frequently occurring, evidently certify their origin."

3. The affinity of the Romanſh, as well to the Latin as to the languages immediately derived from the Latin.

Firſt, a collateral argument in favour of its derivation from the Latin may be deduced from the word *Romanſh*, the general appellation of the language, and the particular dialect of Engadina, called *Ladin*; both theſe terms having in effect the ſame ſignification, *Latin* † and *Roman* being ſynonymous. But without inſiſting too much on this conjecture, we need only refer to a book written in the Griſon tongue, to perceive the general affinity of its vocabulary to that of the Latin. In this compariſon, however, great allowance muſt be made for the variation which muſt have taken place between a mother tongue, as written in the beſt authors, and its offſpring, which for many centuries was merely colloquial, and not only been occaſionally intermixed with other lan-

* Aporta, Hiſt. i. p. 6.

† Latin and Ladin are the ſame words, only differently pronounced; for it muſt be evident to any one the leaſt converſant with different languages, how often the *t* and *d* are ſubſtituted for each other. Quintilian ſays that the old Romans frequently wrote a *t*, before they had any fixed rules of orthography, inſtead of a *d*; for Alexan*d*er—Alexan*t*er.

guages, but has ſuffered a change in its general modification by the admiſſion of the German ſyntax.

Yet it by no means follows, that the Romanſh, although the undoubted offspring of the Latin, was derived immediately from that language, ſuch as it is found in the beſt authors, or as conſigned to writing during any period of the Roman æra; but rather, that it owed its origin to the vulgar tongue, as it was ſpoken by the people, or to ſome provincial dialect of Italy. In all living tongues there is a colloquial as well as a written language; for how different are the Engliſh and Scottiſh idioms, and even the dialects of Lancaſhire and Norfolk? In France the Pariſian accent varies eſſentially from the provincial pronunciation; and the ſeveral patois of Provence, Lorrain, and Gaſcony, cannot be underſtood without reſpective gloſſaries. The ſame circumſtance prevails in Germany, where the idioms of the Saxons, Auſtrians, and Suabians, are ſcarcely intelligible to each other. That this was equally the caſe with the Latin, we may collect not only from the general analogy of language, but likewiſe from the teſtimony of the beſt authors.

The origin of the Italian and of the other dialects, which are derived principally from the Latin, is frequently attributed to the invaſion of the Goths under Alaric; when a new language was introduced throughout Italy and the Roman provinces. But this is not preciſely the truth; for theſe ſeveral dialects aroſe from a corruption, or at leaſt a variation, in the primitive Latin, antecedent to the irruption of the Goths, or even to the times of the Cæſars. Italy was occupied by many people originally independent; the *Umbri*, *Oſci*, *Samnites*, *Etruſci*, and *Piceni*, all of whom differed in dialect, and many in language, from the Romans. But the Romans had no ſooner conquered Italy, than the Latin language came into general uſe, though in the provinces it was not uniformly pronounced in the ſame manner, as the natives of every diſtrict varied in their mode of articulation.

Cicero mentions ſeveral * corruptions of the Latin which he could ſcarcely comprehend; and Horace alludes to the people of Canuſium, in *Græcia Magna*, as ſpeaking a mixed language †. Canuſium contained, beſides the original Greek natives, many inhabitants from different parts of Italy who ſpoke Latin. Hence their language was a mixture of both Greek and Latin; but ſo extremely impure as to give riſe to the proverb, *Canuſini more bilinguis*.

In Italy there muſt have been many idioms of this ſort, which were for a long time unobſerved. For, while Rome flouriſhed, the language of that capital was the ſtandard of purity, and all other dialects of the Latin were diſregarded. Yet, even at Rome itſelf, the Latin was corrupted at a very early period. Suetonius ‡ relates that Auguſtus frequently affected to write words as they were pronounced, without any regard to orthography, and to abridge them, by the change or omiſſion of ſyllables. If this was the practice of the ſovereign himſelf, in the purity of the Auguſtan age, and in the capital, we may be aſſured, that the ſame cuſtom was ſtill more prevalent among the people in the diſtant provinces, and particularly towards the decline of the empire.

Thus the Latin tongue was growing gradually more corrupt, and would, in proceſs of time, have almoſt totally varied from its primitive purity, even had Rome continued

* Amongſt other examples he ſays, that the people, inſtead of *diem hanc*, pronounced *di hanc*, and *cauneas* inſtead of *cave ne eas*.

† *Cum Pediſus cauſſas exſudet Oppidicola atque*
Corvinus, patriis intermiſcere petita
Verba foris malis, Canuſini more BILINGUIS! Lib. I. Sat. x. v. 30.

‡ *Non literas modo ſed ſyllabas permutat aut præterit. Communis hominum error.*

to be the ſeat of empire; yet it may be allowed, that its decline was haſtened by the irruption of Goths.

Should theſe remarks be founded on fact, the Romans muſt have left traces of their language throughout the different provinces of their vaſt empire; and the ſeveral dialects derived from the colloquial Latin, before they were refined and poliſhed, muſt have borne a reſemblance to each other, in ſome places more ſtriking, in others more faint and diſtant. Although theſe dialects were in ſome meaſure changed and modified by the introduction of the Gothic or German idiom, which the conquerors gradually eſtabliſhed throughout the Roman provinces, yet the ſame affinity muſt have been ſtill obſerved; thoſe changes affected *all* the dialects, and conſiſted not ſo much in varying the expreſſions, as in giving a new modification to the general ſyntax, by the introduction of the auxiliary verbs, by the indeclenſion of the caſes, and by the neceſſary uſe of prepoſitions and articles.

If therefore the Romans eſtabliſhed themſelves in the country of the Griſons ſo effectually as to introduce their own language; and if that tongue, derived from the colloquial Latin, and ſtill further modified by the adoption of the German ſyntax, is, from the peculiar ſituation of the natives, and from not being conſigned to writing till within theſe laſt two hundred years, little changed from its primitive ſtate; we have reaſon to expect, that it ſhould bear evident marks of affinity to thoſe dialects which have originated from the colloquial Latin, and were equally modified by the German ſyntax; it follows alſo, that the reſemblance will be greater in proportion as we can trace earlier and ruder ſpecimens; this analogy is conſonant to experience.

The earlieſt language, which undoubtedly draws its origin from the colloquial Latin, is the ancient Romanſh, called *Lingua Romana*, the mother of the French tongue. It was underſtood in Italy, in the Morea, and at Conſtantinople, and was univerſally diffuſed throughout the ſouthern parts of Europe in the eleventh and twelfth centuries. Planta has unqueſtionably proved that this tongue and the Romanſh of the Griſons are the ſame language.

We cannot expect, perhaps, the ſame evident affinity between the Romanſh of the Griſons and any other language now exiſting; but in comparing it with the Italian, and particularly ſome provincial dialects of Italy, the Spaniſh *, the Patois of Provence, Languedoc, Gaſcony, and Lorraine, we ſhall eaſily perceive, that they originated from the ſame ſtock, with the difference which time, a variety of pronunciation, and the mixture of other tongues, muſt neceſſarily occaſion in all languages. With reſpect to the Italian, it is remarkable that the Romanſh leſs reſembles the pure Tuſcan idiom than the provincial dialects; a circumſtance eaſily accounted for. The Tuſcan has been gradually purified and refined until it has undergone a conſiderable change; and the provincial dialects being leſs committed to writing, have not been ſubject to ſuch variation.

To theſe languages I may add that ſpoken by the Vaudois inhabiting the valleys of Piedmont, in the ſixteenth century, of which Leger has printed ſpecimens, the originals whereof are now extant in the public library at Cambridge; alſo the Wallachian tongue, which is derived from the Latin, introduced by the colony of Romans eſtabliſhed by Trajan on the banks of the Danube. The preſent natives, deſcendants of that colony, although ſurrounded by people ſpeaking the Hungarian and Sclavonian, talk a language in which evident traces of the original Latin are ſtill preſerved. It bears a general re-

* In comparing it with the Spaniſh, we muſt exclude thoſe words which have a ſtrong guttural pronunciation, and are evidently derived from the Arabic.

ſemblance

ſemblance to the Italian; and Aporta, who paſſed ſome time in Hungary, informed me, that, allowing for the variety of pronunciation, he comprehended the natives, and found in their expreſſions no inconſiderable degree of affinity to the Romanſh.

The Romanſh of the Griſons is divided into two principal dialects, that of the Grey League and the *Ladin* of Engadina; for it is needleſs to mention ſeparately the Romanſh ſpoken in the valleys of Munſter and Surſet.

The two dialects perfectly agree in the grammatical arrangement, but differ widely in the pronunciation and orthography: of the two, the *Ladin*, being leſs intermixed with foreign words, is the pureſt; the Romanſh of the Grey League, from the number of German colonies blended with the natives, abounds more in German expreſſions.

The *Ladin* is divided into the two idioms of Upper and Lower Engadina; the vocabulary of both is the ſame, with a ſmall variety of accent * and pronunciation, which ariſes chiefly from the different manner of articulating the vowels. The inhabitants of Lower Engadina ſpeak with a broader accent, like the Dorians among the Greeks; while thoſe of Upper Engadina, like the Ionians, uſe a ſofter pronunciation. Hence is derived a variety in the orthography of the two idioms; and books, although perfectly underſtood by both, are printed ſomewhat different in the two diſtricts.

Before the introduction of the reformation among the Griſons, the Romanſh was eſteemed ſo barbarous a jargon as to be thought incapable of being reduced to grammatical form †. It is no wonder that the monks, whoſe intereſt it was to keep the people in the groſſeſt ignorance, ſhould have favoured this opinion; but it is a matter of aſtoniſhment, that the moſt learned among the native laics, and ſuch intelligent foreigners as Tſchudi and Stumpf ‡, ſhould have ſupported a notion ſo contradictory to common ſenſe. For although it is an evident axiom, that all living tongues may be reduced to certain principles, and conſigned to writing, yet the barbariſm of the Romanſh was ſo univerſally prevalent, that no attempt was made to write it before the ſixteenth century. The perſon to whom the Griſons owe the firſt production in their native tongue, was John de Travers; a man who, blending the characters of the ſoldier, politician, ſcholar, and divine, performed the moſt eſſential ſervices to his country; by his valor in arms, by his ſkill in negociation, by cultivating and protecting letters, and by favouring and aſſiſting the introduction of the reformed religion.

This reſpectable perſon, of a noble and opulent family of Zutz in Upper Engadina, was born in 1483: before the eighth year of his age he was ſent for his education to Munich, and from thence into Tranſylvania. Being there ſeized with a deſire of travelling, he remained abſent thirteen years, and returned to Zutz about the 28th year

* To give an inſtance of this difference

The inhabitants of Lower Engadina pronounce the *a* open as we do in *war*, while thoſe of Upper Engagadina uſe *æ* inſtead of the *a*.

Star	Stær
Judicar	Judicær
Armaint	Armænt
Our	Or
Chiauſſa	Chioſſa.

† Aporta, lib. ii. p. 403.

‡ *Rhetica lingua tam perplexa et impedita eſt, ut ſcribi nequeat; unde omnes literæ ab antiquis confectæ, Latine ſcriptæ ſunt, et quas hodie parant, Germanice ſcribi procurant.* See Tſchudi Alp. Rhæt. p. 9. — And, as Philip Gallicius expreſſes himſelf in his preface to Campel's Pſalter: — *Parce chia 'lg noas languak mæ nun ais ſtæt ſcritt, ne eir crett brick ch'ell s'poaſſa ſcriever inſyn avaunt brick b'lear anns, chia 'lg ſaimper deng da ngyr cun hunur nummad huom Ser Joan Travers da Quotz haa ell impriim ſcritt in Ladin la noaſſa guerra.*

of his age. Highly diſtinguiſhed * for integrity, learning, and abilities, he acquired univerſal eſteem and was raiſed to every honour which his grateful country was capable of beſtowing. Indeed, ſuch was the reſpect generally ſhewn to his ſuperior talents, that no affair of moment was tranſacted by the Republic of the Griſons in which he was not conſulted. His acquaintance with foreign languages, his knowledge of the world, and the politeneſs of his addreſs, rendered him the fitteſt inſtrument to negociate with foreign powers; and he always acquitted himſelf with honour. In a military line he greatly ſignalized himſelf as commander of the Griſon forces againſt James of Medicis, for the rapidity of his movements, his perſonal valour, and cautious conduct; and by laying ſiege to the fortreſs of Muſſon †, he brought the campaign to a ſpeedy and ſucceſsful iſſue.

He was greatly inſtrumental in forwarding the progreſs of the Reformation. Although inclined to favour the new doctrines, yet he was never hurried away by a miſguided zeal. Unwilling to renounce the religion in which he had been educated, without the ſtrongeſt conviction of its ſuperſtitious tendency, he ſtudied the controverſy between the two ſects, and weighed the arguments on both ſides with the utmoſt deliberation; but he no ſooner became a proſelyte to the reformed opinions, than he ſhewed himſelf as zealous in promoting, as he had previouſly been circumſpect in adopting them. Nor did he only favour the reformation by his example and authority, but he even promulgated its doctrines. As few natives of Engadina were qualified, by their learning and theological knowledge, to preach in the Ladin, the progreſs of the reformation was conſiderably retarded. For theſe reaſons John de Travers, who had critically ſtudied and written in his own tongue, condeſcended to inſtruct the people. Having obtained the permiſſion of the church, he aſcended the pulpit ‡, and explained in the moſt perſpicuous manner the Chriſtian doctrines. His diſtinguiſhed abilities, his exalted rank, his venerable age, and his amiable character, drew from all quarters a numerous audience; while his diſcourſes, delivered with a noble ſimplicity of eloquence, made the deepeſt impreſſion, and never failed to increaſe the number of proſelytes. This reſpectable man finiſhed his career, which had been ſo uſeful to his country, and ſo honourable to himſelf, in 1560, and in the 80th year of his age. His writings in the Ladin, which gave riſe to this digreſſion, were, a poem in rhyme, deſcribing the war of Muſſon; many ſermons; and ſeveral ſacred dramas in verſe.

The example of committing the Ladin to writing was next followed by Philip Salutz called Gallicius, one of the earlieſt reformers among the Griſons; who, in 1534, tranſlated the Lord's prayer, the Apoſtle's creed, and the decalogue, into the dialect of Lower Engadina, and not long afterwards, ſome chapters of Geneſis from the Hebrew, and the Athanaſian Creed; which were diſtributed in manuſcript among the natives. Huldric Campbel wrote ſeveral ſacred dramas, in the repreſentation of which he himſelf aſſiſted; and alſo turned ſome of the pſalms into verſe.

* *Ille quidem anno 1483 natus, bis Vallis Tellinæ Gubernator, Epiſcopalis Aulæ Curator, plurimis ad exteros Principes legationibus clarus, in Patria vero omnibus honoris gradibus natus, eruditione, dexteritate, et auctoritate unus in Rætia florebat; ut Reipublicæ lumen, ſidus, et decus merito habeatur. Eo virtutes quia multam ipſi conciliaverunt famam, nulla in Republica momenti agebatur cauſa, cujus vel arbiter non eſſet vel conſilium non advocaretur*, &c. Aporta, tom. i. p. 229.

† Situated near the Lake of Como, not far from Gravedona.

‡ *Stupuit tunc ordo Evangelicus, ſtupuit tota Rætia contemplans eximium inclitumque Heroa, inter Rætiæ gentis optimates, diu principem habitum, ſummis etiam, patriæ honoribus, debito virtutibus premio inſignitum, ſenio nunc confectum ſuggeſtu in publica ſacra æde conſcenſo, populum docere, et alia Eccleſiaſtica munia, quando res poſcebat, operam ſuam cum ordinario Miniſtro conjungendo, et laborem participando, ſummo audientium applauſu undique ex locis circa vicinis, integris turmis ad ejus ſermones audiendos conflacentibus, obiit.* Aporta, tom. ii. p. 239.

But

But theſe compoſitions, being only in manuſcript, were too ſcarce for general uſe; and Tutſchet of Samada, more known by the name of Biveronius, was the firſt who ventured to publiſh in his native tongue. That celebrated reformer, finding, from experience, that the want of religious books in the colloquial language was a great obſtruction to the progreſs of the reformation, printed at Puſchiavo, in 1560, a ſmall work *, which contained an alphabet, the Lord's prayer the Apoſtles' creed, the Ten Commandments, and ſeveral occaſional prayers. This little publication, being well received, was followed by a work of the greateſt importance, a tranſlation of the New Teſtament †.

In 1562, Huldric Campel printed a poetical tranſlation of the Pſalms ‡ of David, and other hymns, for the uſe of the reformed churches; this publication afforded a ſtriking proof of the author's genius, who was able to give ſo much harmony of metre and variety of rhymes to the language in ſo rude a ſtate. Beſides the benefits which this pſalter produced in a religious light, it was alſo ſerviceable in a literary view; as it contributed to diffuſe a taſte for poetical compoſition among his countrymen, and convinced them that divine truths might be inculcated in a pleaſing diction.

Aporta, in his excellent Hiſtory of the Reformation among the Griſons, ſays that the language of Biveronius is (like infant dialects) rude and unpoliſhed, both as to the mode of expreſſion and orthography, and is ſcarcely underſtood at preſent; that Campel greatly refined it, and endeavoured as much as poſſible to reduce the words and orthography to a ſimilarity with the Latin, which was the mother tongue. Hence we may obſerve, that the publications of Biveronius afford the moſt curious ſpecimen of the Ladin, as it exiſted in its moſt ancient ſtate, when it was chiefly a colloquial language.

The poſſibility of writing and printing the Ladin was no ſooner proved by ſuch authorities, than the preſs teemed with productions calculated to diſſeminate the reformed opinions. Theſe publications, however, (not excepting even the performance of Campel) as well as all which appeared in the fifteenth and in the beginning of the ſixteenth century, are now obſolete, and, without a gloſſary, almoſt unintelligible to the natives themſelves, who have not made them their particular ſtudy.

No verſion of the whole Bible was publiſhed in the Ladin before the year 1679; it was printed at Scuol in the dialect of Lower Engadina; and republiſhed with various explanations and a new index, in 1743. Beſides the tranſlation of the New Teſtament by Biveronius, which is obſolete, a new § verſion was printed 1640 in the dialect of Upper Engadina, and is in common uſe. But the natives of this diſtrict have no other verſion of the Old Teſtament than that of Lower Engadina.

As it would be unintereſting to ſend you a dry catalogue of the ſeveral publications in the Ladin, I ſhall therefore only remark in general that except a hiſtory ‖ of the Griſons compiled from various authors by Aporta, the books in this tongue ſolely treat of religious ſubjects. Some of our theological tracts, particularly thoſe written by our

* I poſſeſs a copy of this ſcarce work, reprinted at Zuric 1621, but without the title page. At my requeſt the learned Aporta favoured me with an accurate catalogue of all the books printed in the Romanſh of Engadina and of the Grey League, accompanied with many critical remarks, which I have made uſe of in this letter.

I once propoſed to print this catalogue, which gives the titles of 82 books printed in the Ladin, and 26 in the Romanſh of the Grey League; but relinquiſhed it becauſe it would have ſwelled this work too much, and would be unintereſting to the gentrality of readers; I ſhall therefore only inſert, in the Appendix, the titles of the Bibles, and of the books printed in the Sixteenth century, together with a vocabulary of the language.

† No 1. ‡ No 3. § No 6. ‖ No 7.

divines

divines of the laſt century, are tranſlated into their language; of theſe I obſerved, among the liſt of books in my poſſeſſion, Bayley's Practice of Piety, and Baxter on Vows.

The Romanſh of the Grey League remains to be conſidered. The earlieſt publication in this dialect is a catechiſm, tranſlated from the German by Daniel Boniface, paſtor of Furſtenan, and printed in 1601. It was ſoon followed by a metrical verſion of ſeveral pſalms, accompanied with other hymns, publiſhed at Coire in 1611.

The author of this uſeful pſalter was Stephen Gabriel, a native of Vettan, in Lower Engadina, and paſtor of Ilants; he was a man of conſiderable learning, and his zeal for the reformed religion expoſed him to the fury of the Catholics, who, in 1620, plundered his houſe, burnt his library, and hung him in effigy. Gabriel having eſcaped to Zuric, drew up, during his retirement, an account of the controverſy, between the Proteſtants and Roman Catholics, which in thoſe turbulent times nearly excited a civil war among the Griſons. This polemic treatiſe, written in the Romanſh, was printed at Zuric in 1625, and anſwered in 1630 by a Roman Catholic prieſt in the ſame tongue; a work which is probably the firſt production printed by the Catholics in the Romanſh. Upon the ceſſation of the civil commotions Gabriel returned to Ilants, where he paſſed the remainder of his days in tranquillity.

Stephen was ſucceeded in his preferment and literary purſuits by his ſon Lucius Gabriel, who, in 1648, gave a verſion of the New Teſtament, a work much wanted; as the inhabitants of the Grey League were moſtly ignorant of any but their own language, and could with difficulty comprehend the tranſlation in the dialect of Engadina. It is remarkable, that this verſion, which was printed only forty-eight years after the Romanſh of the Grey League became a written language, ſhould ſtill continue in uſe; a proof either that the language has not received the ſame degree of refinement as the Ladin, or that the firſt perſons who wrote in this idiom took great pains to ſettle the orthography, and arrange the grammatical conſtruction.

The liſt of books publiſhed in this dialect are for the moſt part, far inferior, both as to number and merit, to thoſe written in the Ladin; for, excepting the two Gabriels, the Grey League has furniſhed few men who have diſtinguiſhed themſelves by ſuperior learning.

A complete tranſlation of the Bible was not given before the year 1718; it was publiſhed at Coire, at the expence of the Clergy of the Grey League, and dedicated by the printer to George the Firſt, who ſent in return a preſent of fifty guineas. This ſum being delivered to the printer, and claimed by him as his own property, occaſioned a law-ſuit between him and the editors: the latter, however, although in equity they had the ſole right, were never able to obtain any part of the donation.

LETTER XCI.—FROM DAVID PENNANT ESQ. TO THE AUTHOR.

On the Italian Bailliages of Switzerland.—Journey from the Top of the St. Gothard to Milan.—The Levantine Valley.—Bellinzone.—Locarno.—Town and Lake of Lugano.—Lago Maggiore.—Boromean Iſlands.

SIR,

LITTLE is wanting to complete your deſcription of Switzerland and its dependencies; that chaſm I now endeavour to fill up. Youth and inexperience muſt ſerve as excuſes for errors and omiſſions. Happy if this haſty ſketch may excite the curioſity of yourſelf, or any other traveller equally intelligent, whoſe obſervations may amuſe and inſtruct mankind. The route which I here attempt to deſcribe, is connected with your work; a route which would afford ſatisfaction to the curious of all nations who take you as their guide.

The higheſt parts of the principal Alpine paſſes are chiefly occupied by a ſmall plain or baſon; as the St. Bernard, the Gemmi, the Splugen, and the St. Gothard. From the ſummit of the St. Gothard I commenced my route on the 2d of Auguſt 1786. I followed the courſe of the Teſino, which you mention in your letters; it paſſes by the Capuchin convent, and is ſoon after joined by two other rills from the neighbouring mountains. Near this ſpot the Levantine valley begins, and Switzerland, properly ſo called, may be ſaid to terminate. The deſcent on the ſide of Italy is much ſteeper, the views more ſavage and pictureſque, than in the aſcent from Urſeren, and the road is conducted with equal ſkill. The majeſtic ſcenery is heightened by the Teſino tumbling in an almoſt uninterrupted cataract; ſometimes pent up in a narrow channel, or piercing its way through the remains of avalanches ſtill unmelted, though fully expoſed to the rays of a meridian ſun. Theſe enormous maſſes obſtruct the road; and workmen are continually employed in promoting their diſſolution; as the aggregate of unmelted ſnows, for a few ſummers, would bar all communication between Switzerland and Italy: with ſuch difficulty are the few paſſes kept open!

After deſcending rapidly for three miles through this ſcene of diſſolation, bounded on all ſides by precipices, or impending rocks, the river foaming over blocks of granite, the ruins of the ſurrounding mountains; we croſſed the *Ponte Tremole*, or trembling bridge; where the view enlarged, and extended over a verdant valley ſprinkled with numerous houſes.

Airolo, the firſt ſmall burgh, ſtands at the bottom of the ſteep deſcent; to the right is the paſſage over mount Grias to Munſter in the Upper Vallais, practicable only from the middle of July to October, when three hundred horſes tranſport weekly the cheeſe from the various parts of Switzerland.

At Dacio we found comfortable accommodations; that village conſiſts only of a few houſes ſeated at the entrance of a paſs, capable of being defended with eaſe againſt the whole force of Italy. A wall and gate is added to its natural ſtrength; but their principal uſe is to prevent contraband trade, and to exact a ſmall toll for the merchandiſe which paſſes that way. For half a league is a ſucceſſion of ſtriking and romantic ſcenery; the perpendicular rocks ſcarcely affording room for the ſteep road, and tranſparent waters of the Teſino, which, thundering over the vaſt fragments, riſes in a white foam, and ſubtle miſt, viſible only from refracting the rays of the ſun. We croſſed the torrent, in that ſhort ſpace, over three bridges thrown from rock to rock, whoſe ſpan

and

and boldneſs of execution might vie with the boaſted, becauſe better known, Devil's Bridge.

Faido is the reſidence of the bailif, nominated by the canton of Uri. He remains in office four years, and his power is almoſt unlimited. Unfortunate inſurrections in 1712, and in 1755, have been attended with the loſs of the few remaining privileges to a people who ſtruggled for liberty againſt democratic oppreſſion *.

Giornico, called by the Germans Irnis, is famous for the victory which 600 Swiſs gained, in 1478, over the troops of the Duke of Milan, amounting to 15,000 men; a victory which inſured to the Swiſs an honourable and advantageous peace. In this neighbourhood we firſt perceived the effects of a ſouthern ſun, and a leſſer elevation above the ſea, by the frequent appearance of vineyards, and the walnut and cheſnut-trees of a very large ſize; the girth of ſeveral among the latter was not leſs than thirty feet. At Polegio, this bailliage ends.

The Levantine Valley, or *Valle Leventina*, is ſuppoſed to retain, by its name, traces of the *Lepontii*, the ancient inhabitants of the ſurrounding regions. Its length from the ſummit of the paſſage on the St. Gothard, is about eight leagues; the breadth very inconſiderable. The lower part is extremely populous, rich in paſturage, and produces much hemp and flax. In the neighbourhood of ſuch lofty mountains, its climate muſt be variable, and liable to frequent rains. To prevent theſe rains from damaging their crops, the inhabitants ſuſpend and dry the corn and graſs on bars ſupported by two high poles about fifteen feet aſunder. The houſes are entirely of wood, and have externally the appearance of Swiſs cottages; but a neglect of cleanlineſs proves the vicinity and greater ſimilarity to the Italians. The Teſino is here joined by the Bromio, a torrent which takes its riſe in mount Uccello, or the Vogelſberg, near Splugen; a bridge over it is the boundary of the two bailliages of the valleys Levantine and Poleſe, and leads into that of Riviera. The valley now becomes perfectly flat, and of courſe ſubject to violent inundations; the few villages are ſcattered on the ſides of the ſteep mountains; below all is deſolate. Oſſogna, the reſidence of the bailif, conſiſts only of a few houſes. The country ſoon improved; the ground roſe gently from the bed of the river, when we came in ſight of the beautiful town of Bellinzone, ſituated in a delightful plain, encircled with ancient walls and battlements in good repair; to the right riſe majeſtically the ruins of an ancient caſtle; to the left, ſeparately embоſomed in trees, are the caſtles of the bailifs of the three regent cantons, Uri, Schweitz, and Underwalden.

About the beginning of the fifteenth century, the Swiſs, at peace with the Houſe of Auſtria, ſeem firſt to have been ſtimulated with the ambition of extending their dominions towards the ſouth. In 1410, the whole Helvetic body, excepting the canton of Bern, paſſed their natural barriers, plundered the town of Domo d'Oſcella, and the adjacent country, and returned laden with ſpoil to paſs the winter in their humble cottages. Elated by ſucceſs, the enſuing ſummer ſaw them again deſcend into the plains of Italy, and ravage the duchy of Milan, then ſubject to the Viſcontis; they again retired, but without attempting to make a ſettlement. Bent on theſe enterpriſes, we are not ſurpriſed, that, in 1422, the three original cantons purchaſed the town of Bellinzone from its owners the counts of Sax; or that Philip Maria, duke of Milan, exerted himſelf to prevent from falling into their hands a town ſo important, from its ſituation and natural ſtrength, to check their inroads, and cover his dominions. Having therefore taken poſſeſſion of it by force of arms, a body of 8000 Swiſs paſſed the Alps.

* The Levantine Valley was included in the canton and department of Bellinzone.

The forces of both nations met; the Italians were led on by Carmagnola; a bloody battle enſued, of which both ſides claimed the victory; the Swiſs retired with a ſtandard taken from the enemy, who remained maſters of the town.

Excepting ſome inroads, nothing of importance was again tranſacted to the ſouth till the year 1466, when Galeazzo Maria Sforza, the new duke of Milan, formed an alliance with his tranſalpine neighbours: the firſt article was the ceſſion of the Levantine Valley to the canton of Uri, for which he was annually to receive three hawks and a croſs-bow. Yet ten years after, when Charles duke of Burgundy threatened the total deſtruction of the republic by his powerful invaſions, the treacherous duke of Milan ſent a body of troops to his aſſiſtance, who were intercepted in the Vallais, and worſted. On the defeat and death of Charles at the battle of Nancy, they again reſolved to make an attempt on Bellinzone; but as the ſeaſon was too far advanced to undertake the ſiege, a body of 600 Swiſs reſolved to winter at Giornico. The duke collected an army of 15,000 men, and attacked them in their entrenchments, but was repulſed with the loſs of 1400 of his beſt troops. The mountaineers were enriched with the ſpoils; but no regular attack was made on the object of their invaſion.

From this period the wars in which the Swiſs engaged no ways concerned themſelves; they ſacrificed their blood in foreign quarrels, and the contending parties made uſe of their ſuperior valour to attempt or eſtabliſh conqueſts in Italy. In 1500 the three cantons obtained what they had ſo long contended for: the inhabitants of Bellinzone, vexed by the frequent changes in the Milaneſe, voluntarily ſurrendered to them. The French, when they had conquered the duchy, in vain reclaimed it; the Swiſs retained poſſeſſion; and the ſeven Italian bailliages were formally ceded to them by Maximilian Sforza, in gratitude for their having reinſtated him in the ducal ſeat. Courted or feared by all parties, thoſe valuable territories were confirmed to them by the French, and finally by the Houſe of Auſtria.

The bailif remains in office two years; he is nominated reciprocally by the three cantons, and is generally removed from Riviera the pooreſt, to Bellinzone * the moſt lucrative of the three governments. An appeal lies from his deciſion to the ſyndicate, and from that court to the three cantons: in eccleſiaſtical affairs, the inhabitants are cognizable to the biſhop of Como, excepting three pariſhes. Moſt of the natives underſtand Italian, but the language is a corrupt German.

The interior of Bellinzone by no means correſponds with its external beauty and ſituation; the ſtreets are narrow, and the houſes ill built. We continued our journey ſouth on the banks of the Teſino, which we croſſed in a bad ferry: that river is here increaſed to a conſiderable ſize, by the numerous additions it has received in its courſe, particularly from the Muſa, a torrent which takes its riſe in the St. Bernardin, and flowing down the Val Maſox, forms a junction above Bellinzone. The valley is level, and laid waſte by numerous torrents; the road runs along the ſides of the hills through continued vineyards. We proceeded at the foot of the weſtern chain of hills; a ſimilar ridge bounds the view to the eaſt, both clothed to their ſummits with woods of cheſnut and walnut trees, half concealing frequent ſpires and numerous hamlets. Before us the view extended to a part of the Milaneſe, over the lake of Locarno, or Lago Maggiore. Having reached its north weſtern extremity, we coaſted its banks for two or three miles; and arrived at the town from which it derives its name.

* Theſe three bailliages are in the new diviſion conſolidated into the canton or department of Bellinzone.

Locarno

Locarno contains about 1500 inhabitants. Part of the town is built on piazzas in form of a creſcent with two wings; in front is a row of trees, and the public walk: the old part of the town is dirty, and the ſtreets narrow. It contains three convents, and a ſmall Franciſcan monaſtery, perched on a rock overhanging the valley, and commanding a ſuperb view of the lake and its magnificent boundaries. The canopy, in the church of the Capuchins, deſerves to be mentioned for its beautiful execution; it is of ſtraw-work, and almoſt rivals velvet and gold fringe.

Of the four tranſalpine bailliages which belong to the twelve cantons, Lugano holds the principal rank, Locarno * the ſecond. The governor, or commiſſary as he is called, is ſent in ſucceſſion by all the cantons except Appenzel; he remains in office two years; in criminal affairs his deciſion is abſolute; in civil, an appeal lies to the annual ſyndicate from the regent cantons, and from thence to the Helvetic body aſſembled at the diet. The emoluments of this poſt are not great; but the profits unfortunately depend too much on the virtue of the man, as they ariſe principally from fines exacted for criminal offences. The people enjoy ſome privileges, and hold an annual aſſembly in the month of January, in which they elect twenty counſellors; twelve out of the town, three from Aſcona, the remainder from the country at large. Theſe counſellors have the charge of watching over the intereſts of the republic, as far as does not interfere with the ſuperior powers, of ſettling the public expences, and of raiſing the ſupplies paid to the governor. Theſe bailliages do not produce corn ſufficient for their domeſtic conſumption; that grain is furniſhed by treaty from the duchy of Milan, and is weekly imported from Livino, a village on the oppoſite ſhore. The chief food of the peaſants is a cake made with maize and millet; the inhabitants on the banks of the lake are well ſupplied with fiſh.

The fiſheries give employment to a great number of hands, although they are in ſome degree ſubject to monopolies. In the months of May and June, from 200 to 250 lb. weight are taken in a day: trout of 40 lb. and perch of 9 lb. are found in the lake.

In 1555, the doctrines of the reformation had made conſiderable progreſs in theſe parts: but the Catholic cantons, at the general diet, obtained an edict, that thoſe who refuſed to return to the ancient faith ſhould quit the town and province. Numbers, thus driven from their native country, were received with open arms by the canton of Zuric, which was benefited by their induſtry, and owes to them the introduction of the ſilk manufactures.

Locarno was once ſituated on the lake, and had a port capable of receiving large barks: at preſent it ſtands at the diſtance of a quarter of a mile; a circumſtance owing to the accumulation of ſand brought down by the torrent Maggia.

The little voyage from hence to Magadino is delightful: we croſſed the upper part of the lake in an hour; the banks of this noble piece of water riſe boldly, and are well wooded; Locarno forms a fine object, to the ſouth is the opening into the Val Maggia, terminated by mountains covered with eternal ſnow. The ſpot where we landed conſiſts only of a few ſcattered houſes, for the purpoſe of receiving the merchandiſe, which is put on ſhore and ſent on horſes to Bellinzone. Old Magadino is more inland, and owed its origin to the vicinity of the lake, the retiring of which has cauſed its ruin. From thence the road winds up the ſteep ſides of the mountain Cenero, through woods of walnut and cheſnut trees, interſperſed with oak and holly; on the ſummit of the paſſage is a ſmall oval plain, the boundary of the bailliages of Locarno and Lugano. Our

* Theſe two bailliages of Lugano and Locarno, together with thoſe of Val Maggio, Mendricio, and Balerna, are formed into the canton or department of Lugano.

deſcent lay between the hills, through luxuriant and verdant vallies, peopled with numerous villages, and rich in every production. The vines, laden with fruit, are conducted in elegant feſtoons from tree to tree; a conſtant variety of ſcenery, ſoftened by the glow of a ſetting ſun, and next ſilvered by the moon glimmering on the diſtant lake, heightened the charms of our journey through this Elyſian country.

The ſituation of Lugano is delightful; it is built round the curve of a bay, and backed by a fine ſucceſſion of hills, riſing in gentle ſwells to a conſiderable height: in front, a bold mountain clothed with foreſt projects into the lake, of which a noble branch extends to its right and left. To that ſpot boats of every ſize are continually paſſing and repaſſing, its baſe being perforated with *cantine*, or caverns, to which the inhabitants ſend their meat, and all ſorts of proviſion, where it is kept untainted for ſeven or eight days, and the wine preſerved with a delicious coolneſs. Enjoying the advantages of a ſouthern climate, it has few of its inconveniences: the heats are moderated by the ſurrounding hills and the cool breezes from the lake. It is no leſs ſheltered from the Alpine blaſts, which, chilled by the neighbouring ſnows, would otherwiſe deſcend with violence, and deſtroy the temperature of this equal climate. Olive, almonds, and all the ſouthern fruits, ripen here to perfection.

Lugano is the emporium of the greater part of the merchandiſe which paſſes from Italy over the St. Gothard, or the Bernardin. At the end of autumn, the Swiſs mountaineers bring down numerous herds of cattle for ſale, and return with leſs bulky commodities. The town contains about 8000 inhabitants; moſt of the houſes are built of tuf-ſtone; the reſidence of the *capitano*, or governor, is a low building; on the walls are the arms of the twelve regent cantons. On an eminence above the town ſtands the principal church, remarkable only for the beautiful carving in ſtone round the doors, and roſe window, and for the delicious proſpect from its terrace. In the cloiſters of the Recollets is a capital picture, attributed to Luvino: their church is handſome, and the ſkreen is ornamented with the painting of the Paſſion, by the ſame maſter. The palace of the marquis de Riva contains a few good pictures.

We then embarked upon the lake of Lugano *, which is about twenty-five miles in length, and from two to four in breadth: its form is irregular, and bending into continued ſinuoſities. The town is a fine object, backed by the amphitheatre of hills; the banks on each ſide are bordered with a ſucceſſion of gardens and villas. After viſiting the noble branch pointing northward, we croſſed to the Cantine, and continued our voyage under the precipitous rocks, whoſe baſes are loſt in the depths of the lake. We landed at Porto, a ſmall village in the duchy of Milan, ſituated at its ſouthern extremity.

From this point an arm of the lake bends northward, and diſcharges itſelf into the Lago Maggiore, by means of the river Triſa. It is ſcarcely poſſible to imagine a more perfect or greater variety of beauties than this noble piece of water affords; the vaſt overhanging woods, the bold precipices, the tranſparency of the water, unite to form a ſcenery in the higheſt degree luxuriant.

From Porto the traveller may obſerve, with ſatisfaction mingled with compaſſion, the ſtrong contraſt of a free and arbitrary government: the borders of the lake ſubject to Switzerland ſtudded with a ſucceſſion of villages, houſes, and gardens; this part of the Milaneſe deſolate and almoſt unpeopled.

* The lake of Lugano is about 190 feet perpendicular higher than the lake of Como, and Lago Maggiore. The two laſt-mentioned lakes are of the ſame level, and about 240 feet higher than the city of Milan. *Veri Storia di Milan*, p. 5. *Abb. Friſi Dei Canali Navig. di Lombardia*, 4to. p. 465.

On leaving that village, the hills begin to diminiſh, and in the courſe of three miles are totally loſt in the rich plain of Lombardy. Vareſe is entirely compoſed of the ſeats of the Milaneſe nobility. The principal palazzo is the reſidence of the duchess dowager of Modena; the gardens are laid out in the old taſte; the artificial mount commands a fine view over a rich plain, a ſmall lake, and bounded by the long chain of Alps. In the magnificent ſaloon are ſome tolerable portraits of the families of Modena and Auſtria. The emperor, as duke of Milan, has exerted himſelf in the ſuppreſſion of convents; a Franciſcan monaſtery has fallen a ſacrifice to his plans of reformation.

The road from hence to Laveno, a ſmall burgh on the Lago Meggiore, is varied, and the country very rich; to the right, on an eminence, is San Sacramento; to the left we paſſed near ſome leſſer lakes. From Laveno we were rowed acroſs the delightful paſſage to Iſola Bella, one of the famous enchanted iſlands ſo particularly deſcribed, and with ſuch pleaſure, by Biſhop Burnet and Keyſler, who compares it to "*a pyramid of ſweetmeats, ornamented with green feſtoons and flowers.*" But as the taſte of mankind alters with the ſucceſſion of years, I conſidered it only as a monument of expence and folly; terrace riſes above terrace in regular gradations, bordered with flower-pots, or gigantic ſtatues of horſes, gods and gopdeſſes; the whole is raiſed upon arches, and the ſoil has been brought from the ſhore to cover them. The palace is magnificent, and contains a profuſion of marbles and paintings; the lower part of the houſe overhangs the lake on one ſide, where ſeveral apartments are furniſhed in the ſtyle of grottos; the floors, pillars, and walls, are inlaid with various-coloured ſtones, marbles, and ſhells; the view and the coolneſs united make this part a delicious ſummer retreat.

If any thing juſtly gives this iſland the appellation of enchanted, it is the proſpect from the terrace: the gradual diminution of the mountains from the regions of eternal ſnow to the rich plain, the ſinuoſity of the lake, its varied banks, the bay of Margozzo bounded by vaſt hills, the neighbouring burgh of Palanza, and more diſtant view of Laveno, the numerous villages, the Iſola Madre, on which is a palace of the Borromean family, and another iſland ſprinkled with fiſhermen's huts, form a delightful aſſemblage. Theſe iſlands, and the whole weſtern coaſt of the lake to the bailliage of Locarno, was ceded to the king of Sardinia, by the late empreſs queen, at the treaty of Worms, in conſideration of the aſſiſtance which ſhe received from that monarch.

We re-entered our boat, troubled by the importunities of the beggars, whoſe miſerable huts adjoining to the palace diſgrace the iſland. Belgeritta is a neat village, containing ſome excellent houſes, and a handſome church. From thence we continued our voyage down the lake. The tract of country to our right, from near Palenza to ten miles ſouth of Arona, pays a ſmall contribution to the Borromean family for ſeignorial rights. That family receives a toll from the merchandiſe which paſſes, grants the privilege of fiſhing, and appoints eleven judges in the reſpective villages; but an appeal lies from their deciſion to a ſuperior, nominated by the king of Sardinia, and reſident at Palanza, and again to Turin. The riches of this opulent houſe are now increaſing from the product of the gold mines, which lie amongſt the moſt inacceſſible parts of the mountains, thirty miles from Margozzo. Above Arona is a ſeminary for forty boys, founded by San Carlo Borromeo; near it his coloſſal ſtatue, ſixty feet in height, is placed on a pedeſtal of juſt proportions; he is repreſented in his cardinal's habit, the right hand extended, a book under the left arm. The ſtatue is of bronze, was caſt at Milan, and brought in ſeparate pieces. San Carlo, nephew to Pope Pius the Fourth, was born near this ſpot; he paſſed with early credit through his ſtudies, and the dignities of the church; was made a cardinal, and archbiſhop of Milan. His

charity

charity and pious exertions, during the plague which ravaged his diocese, the subject of so many fine pictures at Milan, insure him more general renown than his canonization in 1610.

Arona is a small town, with a neat port; above it rises a ruined castle, which, in the earlier part of the Milanese history, was a place of the utmost importance: at the period when the great contests arose between the families of Visconti and Torriani, this castle was the perpetual object of capture and reprisal. Otho Visconti, the archbishop, who at length gained the ascendancy, was twice repulsed and driven from hence. Two promontories project into the lake at this spot; the eastern is crowned with the castle of Angliera, and gives name to this valuable province, which in 1397, to gratify Galeazzo, the second duke of Milan, was erected into a county by the emperor Wenceslaus, and has since been transferred to the King of Sardinia. On doubling the promontory of Arona, the lake again enlarges, and forms a bay; the banks are very low. Soon after entering the Tesino we landed at the dirty village of Sesto; hired another boat, and were hurried with great rapidity down that river, between high banks of gravel, to the commencement of the *Naviglio Grande*, the great canal which forms the junction between the Po and the Adda, calculated not less for conveying merchandise and wood to Milan, than for benefiting the neighbouring country with partial inundations, and for the purpose of laying the rice fields under water. Its breadth at first is great, but narrows as we advance, and the stream becomes almost a dead water *.

If bad weather and other circumstances had not prevented me from extending my tour, I purposed visiting the bay of Margozzo, Domo d'Ossella, Varallo, and the gold mines in its neighbourhood; an excursion, which, from the reports I have heard, could not fail of affording the highest satisfaction to the naturalist, and the lover of nature in her great features.

* According to the Abbé Frin, the length of the Naviglio is 86,000 braccia, or 14 Italian miles (60 to a degree); its breadth at the entrance 70, which gradually diminishes to 20; and the perpendicular height of the fall of water is 50 at first 5 braccia per mile, gradually decreasing for the first twelve miles, until it is no more than one braccio in a mile; then increasing for the five next miles to a little more than five braccia in a mile. – See *Canal. Navig. di Lodi*, C. 1. A Milanese braccio is to an English foot nearly as 22 to 11.

END OF VOL. V.

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